

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXXVII. NEW YORK, SATURDAY, AUGUST 18, 1900.

No. 7.

ORIGINAL ARTICLES.

THE TREATMENT OF ACUTE ALCOHOLISM BY LARGE DOSES OF DIGITALIS.¹

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SUGGESTIONS for the use of large doses of digitalis in the treatment of acute alcoholism came from Sweden and England. Fothergill and Jones of Jersey, England, were the first to introduce its use to the medical profession. Both recommended it very highly. The latter publishes a report of over seventy cases treated by this method alone. He claims that he never saw any alarming symptoms following the use of one-half-ounce doses of the tincture. A few clinicians in this country have tried the remedy with varying success, among them Dr. Horatio C. Wood of Philadelphia who speaks highly of its effect in a certain class of cases. It is interesting to note that a drug, the use of which even in moderately-large doses is supposed to be fraught with some danger, can be given in one-half-ounce doses without producing any of the ordinary symptoms of digitalis-poisoning. Various explanations have been offered to account for the tolerance of these enormous doses. Wood believes that its explanation lies in the fact that the heart has become by long habit very much benumbed to the influence of stimulants, and explains the narcotic effect of the drug by the fact that the rest and sleep which follow its use are not the result of the cardiac stimulation, but are principally due to the increased flow of blood to the nerve-centers. Others have explained its effect by the digitalis controlling the arteries and compare its action to the effect of ergot in hemorrhage.

All investigators agree that in acute alcoholism there is singular tolerance for this remedy and the majority believe that it can be used in these large doses with but little danger. Ringer, in an extensive discussion of the use of this remedy in acute alcoholism, recommends it highly and closes his article with these words: "It remains to ascertain the form of the disease amenable to digitalis."

While this remedy has been used quite extensively in England it has had no extensive trial, so far as I am able to ascertain, in this country. During the past spring, while on duty as attending physician to the alcoholic wards of Bellevue Hospital, I used the tincture of digitalis in one-half-ounce doses in a series of ten cases, repre-

senting acute alcoholism. The cases were selected so as to include different classes of individuals—the strong and robust, the weak and the anemic, the young and the old, those with nephritis, and those with surgical complications. In the treatment of these cases of delirium tremens a routine practice was followed. They were ordered one-half ounce of tincture of digitalis, to be given every four hours for three doses. If the patient became quiet and the delirium disappeared, the remedy was stopped before the third dose. If not, another series of three doses six hours apart is ordered. In the cases that showed the best results not more than three doses were necessary. The guide to the repetition of the doses was its narcotic effect. No marked dropping of the pulse was noted in any of the cases, but in the successful ones the pulse was seen to be increased in force, fuller, stronger, and more regular after the first dose. The cold, clammy perspiration disappeared, the skin became warmer, and the patient went to sleep. No effect of the remedy was noticed on the kidneys as shown by the usual secretion of urine.

In only three of the ten cases was the result so pronounced and so quick that there seemed to be no question that it was entirely due to the effect of the digitalis. In some of the cases the remedy was an absolute failure. Two of the patients died. Autopsies were made in both. Beyond the wet brain of acute alcoholism, there was not any lesion found in one case. In the other case, which died in convulsions, in addition to edema of the brain, petechial hemorrhages were found beneath the endocardium. I have always felt that possibly in this case the digitalis had something to do with the cause of death, although it was a desperate case complicated by acute articular rheumatism. Still, the man was a robust individual thirty years of age.

The following case is one of those in which the digitalis shows its most beneficial effects. A young man, well-nourished, robust, twenty-two years of age, entered the alcoholic wards late one afternoon, showing all the symptoms of a severe delirium tremens of two-days' standing. Temperature, 101° F.; pulse, 102; respiration, 24. He was ordered during the first night one-half ounce of the tincture of digitalis at 9, 1, and 5. He did not sleep during the night and had to be restrained. The next morning at 9 o'clock the temperature fell to 99.5° F., pulse to 100 and respiration to 24; the patient became quiet; delirium disappeared, and he went to sleep. He slept all that day with the exception of about three hours during which he had to be restrained. He received no more digitalis and during the next

¹ Read before the Section on Materia Medica and Therapeutics American Medical Association, Atlantic City, June 12, 1900.

night his sleep was unbroken. The following day he was perfectly rational and in the afternoon left the hospital. Ordinarily such cases, even when under the best treatment, are not discharged before the third or fourth day.

The second of the successful cases was a man of robust build, thirty-two years of age, who entered the ward with alcoholic delusions. At the end of twenty-four hours he developed delirium tremens and had to be restrained. During the next twenty-four hours the ordinary treatment of narcotics was followed with no effect. Temperature 103.2° F.; pulse, 108; respiration, 30. He was put on tincture of digitalis, half-ounce-doses, every four hours. After four doses his temperature was 99.4° F.; pulse, 106; respiration 24; he was more quiet but still delirious. A second series of three half-ounce doses of digitalis, each four hours apart, was ordered. After the second dose the patient went to sleep and slept almost continuously for twenty-four hours. He left the hospital the following day.

It is needless to report the other cases in detail, but, as a result of studying the carefully-kept records of these cases and from my personal experience in the use of the drug a year ago in six cases, I would state the following as my conclusions: (1) The indiscriminate use of large doses (half an ounce) of digitalis in acute alcoholism is fraught with danger. (2) The kind of cases in which it should be given are the strong, robust patients in early life, suffering from no complications, and with violent delirium. In these cases the result, I believe, will be exceptionally favorable. They become quiet, go to sleep with a certainty and promptness that is not obtained by any other methods with which I am familiar. (3) If after three doses no narcotic effect is noted, I would not advise a continuance of the remedy. I believe in the above class of cases it can be used with perfect safety for a limited number of doses. (4) The failures in my cases were in chronic alcoholic subjects, in middle and advanced life, in anemic individuals with bad nutrition. (5) One fact noted in the cases which showed marked results from the treatment was that when they recovered and awoke from their sleep they were in such good condition that they were able to leave the hospital at once. This is an unusual experience as ordinarily convalescence is delayed for two or three days.

Case I.—G., aged thirty-eight, poorly nourished, entered the hospital with acute alcoholism. Two days afterward developed delirium and was transferred to the alcoholic ward. Temperature, 102.4° F.; pulse, 84; respiration, 20. For two days tincture of digitalis every four hours was given without effect. Patient noisy, delirious and unable to sleep. On the third day the digitalis was increased to half an ounce, but no results were noted. Digitalis was stopped and the pa-

tient was put upon bromide-and-chloral mixture without any effect. Twenty-four hours after the digitalis was discontinued. The patient died in convulsions. Autopsy showed no lesion with the exception of edema of the brain.

Case II.—S., aged twenty-two, well nourished, robust. Already reported.

Case III.—Male, aged thirty-two, strong, robust, delirium tremens following alcoholic delusions. Already reported; favorable result.

Case IV.—A., exceedingly wild, unable to sleep. Three half-ounce doses of tincture of digitalis were given four hours apart. No effect was noted on the temperature. Respiration and pulse which had been weak and soft, became of high tension. As the delirium increased and no benefit was noted at the third dose, the digitalis was stopped. The patient recovered at the end of five days without any treatment.

Case V.—M. G., aged forty, old rounder, poorly nourished. Entered with delirium tremens and fracture of the arm. Four half-ounce doses of digitalis were given without any effect. Patient died in convulsions six hours after the last dose. This case was a bad one and it is hardly fair to consider that the digitalis had anything to do with the death.

Case VI.—L., aged twenty-five, robust, well nourished, very severe case. Wildly delirious; after four doses of the tincture of digitalis four hours apart, the pulse, temperature and respiration dropped from 102° to 99° F., 108 to 100, 26 to 24, but the delirium still continued. Slight improvement in the patient's general condition being noted the digitalis was continued for two more doses. The patient quieted down and went to sleep and slept for nearly twenty-four hours. This was one of the successful cases.

Case VII.—L., aged thirty, anemic, poorly nourished, chronic Bright's disease. After forty-eight hours of treatment by bromide-and-chloral mixture and hypodermics of morphine and hyoscin no effect was noted. The patient was then put on four half-ounce doses of tincture of digitalis. He went to sleep and slept for twelve hours. The patient became worse and temperature rose to 105° F. He finally died after another twelve hours. This was a desperate case and death was easily attributable to his run-down condition.

Case VIII.—M., aged sixty, chronic alcoholic, badly nourished, renal complication. Delirium tremens developed in this case after being in the ward twenty-four hours. Five half-ounce doses of tincture of digitalis were given in this case and no effects were noted. The patient died thirteen hours after the last dose. Pulse dropped before death to 48. Digitalis was a complete failure in this case.

Case IX.—G., aged forty. This case was badly nourished; was transferred from surgical ward with a broken arm, suffering from severe delirium tremens. Three half-ounce doses of the tincture of digitalis were given, but with no result. The patient remained delirious and noisy.

¹ I am indebted to my house-physician, Dr. D. Metcalfe Polk, for carrying out with painstaking care the details of this treatment and furnishing me with accurate histories of the cases.

He recovered from his delirium tremens at the end of forty-eight hours. He received no narcotic.

Case X.—G., aged forty-five, hard drinker, well nourished; robust; albumin in urine. Acute delirium tremens. Bromide and chloral given followed by morphine and hyoscin with no results. After being in the hospital twenty-four hours he was given half an ounce of tincture of digitalis for four doses. After the fourth dose the patient became quieter. Pulse under digitalis fell from 130 to 108. The patient became quieter and slept, although no more digitalis was given. At the end of twenty-four hours he was up and about the ward; in another twenty-four hours he left the hospital.

SUBSEQUENT HISTORIES OF PATIENTS APPARENTLY CURED UNDER ADMINISTRATION OF ANTITUBERCLE SERUM AS AN AUXILIARY TO CLIMATIC TREATMENT.

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At the annual meeting of the American Climatological Association in 1898 I had the honor to present a paper entitled "Some Statistics Upon Serotherapy in Tuberculosis." In the conclusion of that paper thirty-six incipient cases were reported which, under antitubercle serum, as an auxiliary to climatic, treatment, showed 39 per cent. apparently cured. Fifty-five per cent. were generally improved, as evidenced by decrease in tubercle bacilli, expectoration, and cough, by increase of weight, strength, and appetite, and by more or less improvement in physical signs of disease. Of this 55 per cent. 9 per cent. may be fairly declared arrested cases. There were also reported forty-two moderately-advanced cases treated in like manner in which the bacilli decreased in 30 per cent., weight gained in 61 per cent., and in between 71 per cent. and 85 per cent. a marked improvement of all other symptoms was shown. One apparent cure was noted in this class. Four far-advanced cases were reported, showing general improvement of physical signs, appetite, cough, and expectoration in 25 per cent. and increase of weight in 50 per cent. No decrease in bacilli or apparent cures were noted among this class.

Summarizing the three classes of cases reported, it was shown that eighty-two patients were treated with the following results:

Number of cases treated.....	82
Expectoration decreased in.....	82 per cent.
Appetite improved in.....	81 per cent.
Weight gained in.....	78 per cent.
Physical signs improved in.....	78 per cent.
Temperature decreased in.....	49 per cent.
Bacilli disappeared in.....	13 per cent.
" decreased in.....	35 per cent.
Cough decreased in.....	79 per cent.
Apparent immunity established in.....	21 per cent.
General improvement in.....	78 per cent.

In closing the paper the writer said as follows: "I wish to place myself distinctly on record as not being, as yet, a thorough convert to serotherapy in the treatment of tuberculosis; I appear before you simply as an investigator of this subject; I believe that we are investigating along the right line; that the results of serum treatment are, as a whole, more satisfactory than treatment by any one drug; but as yet we have found no specific for this dread disease."

In pursuance, therefore, of investigation and study of this subject, it may be of interest to hear of the present condition of those patients reported two years ago, as comprising the 39 per cent. apparently cured, as well as the present condition of eleven whose histories were not included in the former paper. There was a total of fourteen patients comprising this 39 per cent. reported. It has been possible to trace and obtain accurate histories of only nine, but in addition to these, the remaining five are known by general repute to be in the same condition as when they were discharged; we have no knowledge of any relapses. Those whose histories have been traced, numbering nine, are divided into two classes, representing respectively those who have been discharged three years and two years.

Four have been away for three years, and their histories are as follows:

Case I.—On admission to the Sanitarium showed signs of incipient tubercular involvement down to the second interspace anteriorly and to the spine of the scapula posteriorly on the right side; the examination of the sputum showed numerous tubercle bacilli, with mixed infection. Serum was administered for six weeks in Liberty, then the patient returned to New York City and the injections of serum were continued for five weeks longer. Shortly after returning to his old environment, the tubercle bacilli disappeared, the patient gained seven pounds in weight, and was apparently cured. During three winters he has been constantly at work. His present condition is excellent; there is neither cough nor expectoration, and the physical signs in his lungs are negative. The patient has lost four pounds since returning to work, leaving a net gain of three pounds.

Case II.—Entered the Sanitarium suffering from incipient tuberculosis; no tubercle bacilli were present in the sputum. Serum was administered for three months. Patient gained fifteen pounds in weight, and was apparently cured when she returned to her old environment, where she has been at work for three years. Her present condition is excellent; there is neither cough nor expectoration; physical signs in her lungs are negative; and the patient has gained ten pounds since returning to work.

Case III.—Entered the Sanitarium with incipient tubercular involvement at both apices; numerous tubercle bacilli were present in the sputum. Serum was administered for four months at the Sanitarium, and for one month

after the patient returned to New York City. The tubercle bacilli disappeared after four weeks' treatment; the patient gained forty pounds, and was apparently cured when discharged from the Sanitarium. This patient has been at work for three years. She had an attack of the grip last summer; at present she is anemic; has neither cough nor expectoration; the physical signs in the lungs are the same as at the time of discharge, *viz.*, slight dulness at right apex. There has been a loss of twenty of the forty pounds gained here, her weight now being normal.

Case IV.—Entered the Sanitarium with incipient tubercular involvement of the right upper lobe. The examination of the sputum showed a few tubercle bacilli with mixed infection. Serum was administered for two months and a half. The patient gained ten pounds in weight, the bacilli disappeared, and she was apparently cured when discharged from the Sanitarium. This patient has been at home for eighteen months, and her present condition is excellent; physical signs in the lungs are negative, and there is neither cough nor expectoration.

Five patients have been away for two years, and their histories are as follows:

Case I.—Entered the Sanitarium with incipient tubercular involvement of both upper lobes, and a moderate number of tubercle bacilli present in the sputum. Serum was administered for six months. Tubercle bacilli had disappeared, the patient had gained five pounds in weight, and was apparently cured when discharged from the Sanitarium. She worked in New York City for fifteen months, and then returned for the purpose of entering the Nurses' Training School at the Sanitarium. Her present condition is excellent; the physical signs are negative; weight is stationary; cough and expectoration, due to chronic bronchitis, are still present. The tubercular process in this case was engrafted upon a bronchitis of many years' duration.

Case II.—Entered the Sanitarium with incipient tubercular involvement of the right upper lobe; a moderate number of tubercle bacilli and mixed infection were demonstrated in the sputum. Serum was administered for six months. Tubercle bacilli disappeared, the patient gained eight pounds in weight, and was apparently cured when discharged two years ago. This patient also entered the Nurses' Training School at the Sanitarium immediately after she was discharged. She has spent four months in New York City, in hospitals, training as a nurse, with long irregular hours, and of course in a comparatively unhealthy atmosphere. Her present condition is excellent; physical signs in the lungs are negative; there is neither cough nor expectoration, and her weight is stationary.

Case III.—Entered the Sanitarium with incipient tubercular involvement of both upper lobes; no tubercle bacilli could be found in the sputum. Serum was administered for one month; patient gained five pounds in weight; he has lived in his old environment for twenty-one

months; his present condition is excellent; physical signs in the lungs are negative; there is neither cough nor expectoration; the patient has gained nine pounds since returning home.

Case IV.—Entered the Sanitarium with incipient involvement of the right apex; tubercle bacilli were demonstrated in the sputum. Serum was administered for three months and a half. Tubercle bacilli disappeared, the patient gained nine pounds in weight, and was apparently cured when discharged from the Sanitarium. He returned to his old environment, but engaged in out-door instead of in-door work. His present condition is excellent; signs in the lungs are negative; he has neither cough nor expectoration, and has gained seven pounds since returning to work.

Case V.—Entered the Sanitarium with incipient tuberculosis; tubercle bacilli were demonstrated. Serum was administered for seven months at the Sanitarium, and continued for six weeks after the patient's return home. Tubercle bacilli had disappeared, and the patient was apparently cured when discharged from the Sanitarium. This patient has lived at her home for twenty-two months; she had an attack of the grip last winter; her present condition is good; the physical signs in her lungs are the same as on discharge—slight consolidation at the left apex; there is neither expectoration nor cough, and the patient has gained two pounds in weight since returning home.

In addition to the five patients reported as being away for two years, I wish to report an apparently cured case from among the moderately advanced class.

Case VI.—Entered the Sanitarium suffering from tuberculosis, in the moderately-advanced stage, at both apices; a moderate number of tubercle bacilli were demonstrated. This patient showed also tubercular involvement of the throat, evidenced by infiltration of the interarytenoid space, and a tubercular ulcer in the trachea. Serum was administered for five months at the Sanitarium, and for a short time after her return to New York City. The larynx and trachea received local treatment, which did not differ in any respect from that employed in New York City. Tubercle bacilli disappeared, the trachea and larynx resumed their normal conditions, the patient gained ten pounds in weight, and was apparently cured when discharged from the Sanitarium. This patient has spent two winters in New York City, going away for the summer months; she has had one attack of the grip and one of pneumonia since returning home. Her present condition is good, physical examination of the lungs shows a fibroid condition at one apex, and a slight amount of bronchitis; expectoration and cough are slight; weight remains about stationary; tubercle bacilli have never been found in the sputum, although specimens have been frequently examined, since the patient left the Sanitarium.

In addition to these apparently cured cases of two and three years' standing, I wish to report

those who have been discharged for a year or less, and who have spent at least one winter in their old environment. Six were treated in the Sanitarium, and seven in private practice, making a total of thirteen patients. Of these thirteen the subsequent histories of nine have been traced definitely, and are as follows:

Case I.—Entered the Sanitarium with incipient tubercular involvement of the right apex; no tubercle bacilli were demonstrated. Serum was administered for five months. The patient gained seven pounds in weight, and was apparently cured when discharged; he spent last winter in his old environment; his present condition is good; there are signs of slight fibrosis at the right apex, but no cough or expectoration. Patient has gained two pounds since returning home; he has been away from the Sanitarium for nine months, two of which have been spent in travel.

Case II.—Entered the Sanitarium with very incipient tubercular involvement, and tubercle bacilli were demonstrated in the sputum. Serum was administered for nine months. The bacilli disappeared, the patient gained nineteen pounds in weight, and was apparently cured when discharged. She has lived in her old environment and been at work for about seven months. Her present condition is excellent; the physical signs in the lungs are negative; there is neither cough nor expectoration, and her weight remains stationary.

Case III.—Infiltration at right apex; tubercle bacilli moderate in number. Serum was administered for four months, the dose being 40 minims; no reaction. Bacilli disappeared, the patient gained twenty-one pounds in weight, and was apparently cured when returning to old environment, where she remained from October last to February of the present year, when she returned to Liberty. Her present condition is excellent; fibrosis established at the right apex; slight cough and expectoration still present, but without tubercle bacilli; weight is now stationary.

Case IV.—Infiltration at the right apex, at the base of the left lung, and at the left upper lobe; tubercle bacilli few in number. Serum was administered twice a week for two and a half months, the dose being 45 minims; no reaction. Tubercle bacilli disappeared, the patient gained eighteen pounds in weight, and was apparently cured when he returned to his old environment and work, where he spent one winter and summer. Last winter he spent in the South, where he went on business. He has been away from Liberty for fifteen months. His present condition is excellent; physical signs in the lungs are negative; there is neither cough nor expectoration present, and the weight remains stationary.

Case V.—At the beginning of treatment there was infiltration at the right apex and tubercle bacilli, moderate in number, were found in the sputum. Serum was administered for three months, the dose increased to 50 minims daily; no reaction. Tubercle bacilli disappeared, the

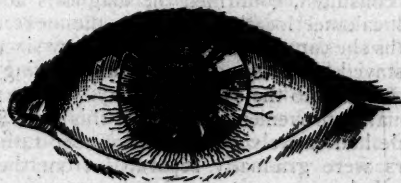
patient gained fifteen pounds in weight, and was apparently cured when he returned to his old environment, where he has been for eleven months. His present condition is excellent, the only physical sign remaining is slightly jerky respiration; there is neither cough nor expectoration, and his weight remains stationary.

Case VI.—The first examination revealed infiltration at the left apex, and consolidation of the right upper lobe; tubercle bacilli were not present. Serum was administered on alternate days for four months in Liberty, the dose being 30 minims; no reaction. The patient gained two pounds in weight, and was apparently cured when returning to his old environment, where he has been for six months, and where he still receives one injection of serum a week. His present condition is good; there is left only slight muffling of the respiratory murmur; there is neither cough nor expectoration, and the weight remains stationary.

Case VII.—There was slight infiltration at the right apex; no tubercle bacilli were demonstrated. Serum was administered for four months in Liberty, the dose being 15 minims; one reaction accompanied by a rash. The patient gained sixteen pounds in weight and was apparently cured when she returned to her old environment, where the serum was administered for one month, and where she remained for three months, and then returned to Liberty to spend the months of March and April. Her present condition is excellent. Auscultation reveals signs of scar at the right apex posteriorly; there is neither cough nor expectoration, and the patient continues to gain in weight.

Case VIII.—Showed infiltration at the right apex, but no tubercle bacilli were found. Serum was administered on alternate days for five months, the dose being 25 minims; one reaction occurred. The patient gained seven pounds in weight and was apparently cured at the time of leaving Liberty. Her present condition is good; physical signs in the lungs are negative; there is neither cough nor expectoration, and she has gained six pounds since returning to her old environment.

FIG. 1.



Tubercular Kerato-iritis.

Case IX.—This patient I have introduced here, not because she is, as yet, apparently cured, but on account of an interesting ocular complication. Before coming under my care this patient developed tubercular kerato-iritis, evidenced by three foci of infection as shown by the accompanying diagram (Fig. 1), kindly loaned to me

by Dr. E. S. Thomson of New York City. The patient was sent to me for the purpose of determining whether there was a tubercular condition present in the lungs which might be considered as the primary focus.

Dr. Thomson's history of the case is as follows: "On June 1, 1899, the patient noticed that the left eye was failing in vision and getting a little red and watery. She consulted several oculists, and finally came to the clinic at the Manhattan Eye and Ear Hospital. She was treated with atropine and hot water applications, locally, and mercury followed by iodide of potassium internally for two months, at the end of which time there was no improvement either in acuity of vision or in the inflammatory symptoms. She then came under the writer's care, and a diagnosis of tubercular kerato-iritis was made. There were at the time several grayish infiltrates in the substance of the cornea, and three grayish nodules springing from the iris near the filtration angle below. These nodules were perfectly characteristic in appearance of tubercle. The multiple character excluded sarcoma. The two months' treatment with antispasmodics, which was entirely without effect, was a strong argument against condyloma, as will be appreciated by those who have seen condyloma of the iris disappear in two or three days under mercury, as it commonly does. Condyloma commonly appears at the pupillary margin, is surrounded by dilated blood-vessels, and causes a violent reaction in the affected eye. In the case cited the nodules were grayish and cheesy-looking, and the whole process was a subacute, indolent one. Vision was 4/200. On account of the local condition, the patient's lungs were examined by Dr. Stubbart, and she was sent to Liberty and placed under treatment August 25th. On October 5th she came to the city for a few days. The only local treatment she had had was atropine and hot-water applications. Her general health had improved; there was less ciliary redness, and the nodules had come forward from the substance of the iris and were lying partly in the anterior chamber against the cornea. Vision was 20/200. Dr. Roosa, who was then consulted, confirmed the diagnosis and advised calomel locally. During the next seven months she came to the city about every six weeks and stayed five or six days at a time, having calomel dusted into the eye once a day. There was a gradual improvement during all this time. One nodule had entirely gone by December 14th. The others were gradually separated from the iris, and all that now remain, June 1, 1900, are two thin cicatrices on the posterior surface of the cornea near the filtration angle. There are numerous new blood-vessels coursing through the cornea on all sides of these cicatrices. All of the corneal nodules have cleared up, leaving slight opacities, except one which seems still to have a little acute infiltration around it. The eye is perfectly white and free from inflammation. The pupil is still dilated, and the vision is

20/100. There has never been any pain and what slight photophobia there was has entirely passed away. The improvement in her eye has gone hand in hand with the improvement in her general condition, and it goes without saying that the former must be largely due to the latter. The local treatment was only antiseptic and soothing. It was very noticeable that the eye showed unfavorable symptoms whenever her general health failed a little. Each time there would be an increase of the redness and the cornea would become more cloudy. As she recovered her normal tone the eye would again quiet down. While the eye cannot as yet be regarded as entirely cured, it seems not too much to say that the process has been arrested and will probably continue to clear up."

In addition to the history cited by Dr. Thomson, I found the patient's lung condition as follows: Slight consolidation of the right upper lobe; no tubercle bacilli in the sputum. Serum has been administered on alternate days for seven months, the dose being 25 minims, and the patient is still under treatment. There occurred one reaction, accompanied by a rash and rheumatic symptoms. Before beginning the administration of serum, this patient had been in the Schawangunk Mountains, near Liberty, without improving; on the contrary, the condition of her eye had been growing progressively worse. The patient's general condition is very much improved; she has gained six and three-quarters pounds in weight; the physical signs in her lungs are as follows: Slight infiltration to the second interspace anteriorly, and to the spine of the scapula posteriorly on the right side. She has neither cough nor expectoration, and continues to gain in weight.

As a study of the possibility of keeping under control an active process which, in the old environment and without treatment, we have every reason to believe would advance progressively, I wish to quote three arrested cases, as follows:

Case I.—Entered the Sanitarium with slight consolidation of the right upper lobe. When discharged she showed a fibrosis surrounding a small cavity from which, at long intervals, is discharged a small amount of secretion containing tubercle bacilli. During the intervals between the expectoration there is no cough. The patient holds her own in weight, general condition, and physical signs, and has returned to her old environment and work.

Case II.—Left the Sanitarium in an improved condition, but with tubercle bacilli present in his sputum, which have disappeared since the patient returned to his old environment, and while engaged in unhealthy employment.

Case III.—Had a small number of tubercle bacilli in his sputum when he left the Sanitarium, but these subsequently disappeared while the patient was living in his old environment, and engaged in his former work.

These three cases, when they left the Sanitarium, were, barring the presence of tubercle

bacilli, arrested cases, as far as physical signs and general condition were concerned.

Résumé.—We know positively that of those discharged apparently cured three years ago, 11 per cent. have remained cured; two years ago, 14 per cent. have remained cured; and 69 per cent. have remained cured of those who have spent at least one winter in their old environment.

Conclusions.—The reports of cases of tuberculosis treated with antitubercle serum under unfavorable climatic conditions are comparatively meager, but as far as they go the results seem to have been unsatisfactory. Therefore, it would seem as though, instead of a hoped-for specific, we have in antitubercle serum simply another auxiliary to climatic, hygienic, and dietetic treatment. Its comparative greater merits as such an agent in the treatment of cases in the incipient stage seem to place it ahead of all other recognized agents in a large majority of instances. Its greater value may not be so well demonstrated in its immediate effects, as in the fact that, *apparently*, there is established an immunity, the duration of which is as yet not determined, and can only be measured by years of observation.

In this connection it may be noted that among patients apparently cured while taking creosote, as an auxiliary to climatic influences, a few instances of relapse have occurred. Finally, the results of two years' further study of the subject would seem to indicate: (1) Further confirmation of the conclusions of the preliminary paper in 1898. (a) The use of serum does not tax the functions of digestion or produce gastritis, diarrhea, or loss of appetite. (b) In cases wherein bacilli have disappeared, they have been lost while the sputa were still present, whereas in creosote cases the last specimens of sputa still contain bacilli. (2) Immunity seems to be established in apparently cured cases, capable of protecting the patient effectually in his old environment at least two years, and *perhaps* for a longer period. (3) The fact that cases for treatment must be selected, even among those in the incipient stage, and that it is less effective in low altitudes and city environment, conclusively ranks antitubercle serum among the auxiliaries to climatic treatment of phthisis, rather than as a specific.

ACUTE ANTERIOR POLIOMYELITIS.¹

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IN acute anterior poliomyelitis, the familiar infantile spinal paralysis, we have a disease meriting the attention of both the neurologist and the general practitioner of medicine. For the latter it possesses probably the greater interest, since in its earlier stages it is most often seen

and treated by him, coming under the observation of the neurological specialist only at a later stage and in its chronic form, when the hope of cure is comparatively small. It is the belief that a review of some of the practical aspects of the disease as it is met with in Alabama, its nature, frequency, symptomatology, diagnosis and treatment, may prove interesting and not unprofitable to the members of this Association, which has encouraged me in the preparation of this paper.

This poliomyelitis, then, to which I ask your attention is an acute, under some circumstances seemingly infectious bacterial disease, presenting in its initial stages the clinical features of an acute germ invasion quickly followed by atrophic paralysis of associated muscle-groups in one or more extremities, the characteristic nervous symptoms being dependent on pathological alterations in certain of the peripheral motor neurons, and in anatomically-related structures of the anterior gray horn of the spinal cord.

Whether the degeneration in the motor nerve-cells be the primary lesion or a secondary effect of inflammation in the extraneuronal structures is one of the undetermined problems in neuropathology, and one which, being of little practical importance, need not detain us here. Another point in the pathology of the disease upon which investigators are not agreed is whether the micro-organisms causing poliomyelitis are specific, that is, produce poliomyelitis and nothing else, or whether the affection is a result of the invasion of bacteria which may under different circumstances incite other forms of disease. No specific germ has yet been isolated and, in the light of our present knowledge of the subject, my own opinion is that the latter view is more nearly correct. As bearing upon this point a recent investigation into the etiology and pathology of poliomyelitis made by Auerbach of Frankfurt-on-the-Main deserves mention. After a clinical study of fifteen cases of the disease, supplemented by examination of the cerebrospinal fluid withdrawn by lumbar puncture, Auerbach reaches the conclusion that the most frequent cause is the Weichselbaum-Jäger meningococcus, and that the difference between cerebrospinal meningitis, some forms of cerebritis and acute anterior poliomyelitis is not one of pathogenesis, but of varying intensity and location of the toxic impress of the same bacterial organism. It is also scarcely to be doubted that certain forms of neuritis may result from a similar infection. A strong argument for the truth of this view is offered by the observed fact that during endemic outbreaks of multiple neuritis some patients may present symptoms of poliomyelitis, and that in epidemics of poliomyelitis cases of neuritis and also of cerebrospinal meningitis are frequently interspersed. Specific instances of this fact will be cited later. It seems also not improbable that the bacterial poison of still other infectious diseases may incite a true poliomyelitis; attest the frequency with which the disease appears as a sequel to or complication of

¹ Read before the Alabama State Medical Association, Montgomery, April, 17-20, 1900.

scarlatina, measles, roseola and acute malarial infection.

This toxin, whatever its nature, produces morbid histological changes in and near the motor area of the central spinal gray matter, usually in the cervical or lumbar enlargement, or in both, and on one or both sides of the cord. In the early stages the microscope reveals an acute localized inflammation with congestion and capillary hemorrhages, a marked round-celled infiltration, together with a parenchymatous degenerative lesion in the cell-bodies and processes of the motor neurons, accompanied by corresponding degenerative alterations in those muscular fibers to which the affected nerve-filaments are attached. At a later period the affected portion of the cord is found to be shrunken and sclerosed, many motor cells, as well as nerve and muscular fibers, completely destroyed, the loss being partly compensated for by an increase in the connective tissues.

The disease is most often met with in children at about the second or third year of life, although it has been seen at all ages; it occurs equally in the two sexes; in all races; in all portions of the known world and under all climatic conditions. It is somewhat more frequent in malarial and miasmatic localities near rivers and streams or bodies of water contaminated by organic matters, and occurs most frequently during the summer months.

It appears sporadically, or, as is most frequently noted, the cases come in groups of two or three or more. Instances of its seeming epidemic, or at least endemic occurrence have also been reported, the most notable examples in North America being an irruption of poliomyelitis reported by J. J. Putnam which occurred in and near Boston in 1894, and the outbreak in Vermont during the same year, studied and reported by C. S. Caverly. This last-mentioned is the most remarkable instance of epidemic poliomyelitis on record, and for several reasons merits more than a passing reference. The cases, some 140 in number, appeared from June to September in 1894, in the towns and country lying in the valley of Otta Creek, a small stream dammed at several points and carrying some sewerage. Most of the cases occurred in children, although several adults were attacked, and one man, aged seventy, had a typical case. Domestic animals such as fowls, horses and dogs also suffered from the malady. The clinical histories of the majority of the cases were typical of poliomyelitis, but some of them presented the features of peripheral neuritis, while many of the fatal cases exhibited the convulsions, coma and other symptoms of cerebrospinal meningitis, being diagnosed as such by the physicians in attendance. We have then presented to us the interesting fact that during the same epidemic and presumably from the same exciting cause there occurred cases of poliomyelitis, neuritis, and cerebrospinal meningitis, a circumstance lending color to the contention of

Auerbach that these several forms of nervous disease may result from the same microbic infection. It is also noteworthy that during this epidemic mild cases of poliomyelitis terminated in complete recovery, although a study of the reported cases of recovery convinces me that some of them were instances of multiple neuritis rather than of poliomyelitis.

In our own State there has been at least one endemic outbreak of poliomyelitis, that previously reported by me to this Association as having occurred in Greene County in 1896. There were in this instance some fifteen cases of the disease during the summer months, confined to an area of country about twelve miles in diameter. Adults were attacked as well as children, and many of the adult patients entirely recovered. The histories of cases kindly furnished me by Dr. G. A. Moore of Clinton leave no question but that the cases in children were cases of poliomyelitis. One of these cases, a lad twelve years old, was brought to me for treatment, giving opportunity for careful examination, which established the fact that this case was one of true spinal atrophic paralysis. There were no deaths and no cases at all resembling cerebrospinal meningitis. Both negroes and whites were attacked. There was much malarial disease in the community at the same time and it is certain that some of the adult cases terminating in entire recovery were instances of endemic or malarial neuritis.

In an effort to find to what extent this infantile spinal paralysis has been seen in Alabama, I addressed letters of inquiry to practitioners of medicine in different parts of the State. Many of our physicians informed me in reply that no case of the disease had ever been seen or heard of by them; others reported that only one or two chronic cases have been known. Of those who have seen cases, and been kind enough to inform me at length concerning them, I will mention the following:

Dr. E. L. Marechal of Mobile saw some years ago in Baldwin County, in the course of a few months, about a half dozen cases of infantile paralysis. These cases were reported to the Mobile County Medical Society but were never published. Dr. Lucius E. Starr of Camden, Wilcox County, has during the past four years seen three chronic cases, but has known of no acute case during that time. Dr. J. P. Furniss of Selma informs me that during ten years past he has met with quite a number of cases of infantile spinal paralysis. He thinks the disease more common in whites than in negroes, and more common in females than in males. He has never known an instance of complete recovery from the disease. Dr. Andrew Jay of Evergreen has treated four cases. One of these was to all appearances the result of an attack of roseola. In a second case, the first attack of the disease was almost entirely recovered from, but a second attack occurred eighteen months later and resulted in permanent paralysis. In three of the four cases the attack

came on with convulsions, and well-pronounced cerebral symptoms, and idiocy with epilepsy supervened in one instance, suggesting the thought that this was most probably an infantile cerebral palsy, rather than a poliomyelitis anterior. There were three cases of infantile spinal paralysis seen by me in Tuscaloosa in 1896 and 1897. I have not seen any case in Mobile during the three years of my residence there, and have been unable to learn of the occurrence of any case during that time. It would seem, therefore, that poliomyelitis has occurred but sparingly in Alabama. I believe, however, that a more accurate knowledge of the symptomatology of nervous affections on the part of the general practitioner would result in the discovery of a larger number of cases. I have found in conversation with and in letters received from physicians concerning this disease that some confusion exists regarding the exact nature of anterior poliomyelitis and its differentiation from other forms of nervous disease in children resembling true infantile paralysis.

A few words, then, concerning its symptomatology and diagnosis. In typical cases the onset is rapid. The child is one day well and playful, the next fretful, feverish and ailing. An initial chill is not infrequent. The temperature rises rapidly to 102° F. or more; there is much gastrointestinal disturbance, scanty high-colored urine, nervousness, restlessness, possibly convulsions or spasmodic movements. At this stage there is, as a rule, nothing characteristic and nothing to suggest the impending occurrence of a serious paralytic attack. Within a few days it is discovered that the child has lost the use of one or more limbs, the legs most frequently, and upon examination a flaccid paralysis of most of the muscles in the affected extremities is brought to light. The muscular tissue is soft and yielding, devoid of tone, the electrical reaction of degeneration is present, the tendon reflexes are abolished, and there may be coldness and circulatory sluggishness in the cutaneous surfaces. Pain and tenderness are sometimes present to a limited degree, but sensory abnormalities are in most instances conspicuously absent. The reflex control of the bowels and bladder remains unimpaired. The motor paralysis has often reached its height before it is discovered, but in some cases there is slow progression for a short time. The fever and systemic disorder subside after a few days, and the child is left nearly or quite as well as before the attack, save that the paralysis persists; and even in the paralysis there is usually a marked improvement, many muscles quickly regaining their power of contractility. The permanently-affected muscles undergo rapid atrophy and the limbs diminish in size. There is a slow but continued improvement in muscular power during several months, after which, in cases that are not treated, the condition remains nearly stationary and the patient goes through life with impaired and shrunken limbs. The remote secondary effects of the nerve-cell and muscular atrophy

are contractures in certain muscle-groups, with possibly spinal curvature, clubfoot, or other deformity, and a partial arrest of development in the affected limbs, which are left permanently smaller and shorter than normal, and may show joint malformations.

In atypic cases, the fever and general systemic disturbance may be absent, or be so slight as to be entirely overlooked, the motor paralysis being the first indication of the onset of the affection. In other cases the cerebral symptoms predominate with mental confusion or excitement, perhaps coma, often general convulsions. These cases so closely simulate cerebrospinal meningitis that there may be difficulty in making an early diagnosis. The subsequent appearance of the atrophic muscular paralysis would, of course, clear up all doubts.

The other difficulties in diagnosis lie in distinguishing the disease under consideration from a neuritis and from the infantile cerebral palsies. Between neuritis and acute anterior poliomyelitis the following differences exist: Neuritis is a disease of adults, poliomyelitis of children. In neuritis, pain, tenderness and paresthesias are early and prominent symptoms. In poliomyelitis, they occur in minor degree or not at all. The onset of neuritis is slower and more insidious, the paralysis resulting from it advances more slowly and from below upward, and almost all cases of neuritis, not fatal in early stages, end in complete recovery; whereas the paralysis of poliomyelitis usually persists through life. In the acquired cerebral paralysis of childhood the onset somewhat resembles poliomyelitis, but the presence of exaggerated instead of lost reflexes, and the persistence of normal electrical reactions, the predominance of cerebral symptoms, with the absence of that flaccid muscular paralysis and atrophy so typical of poliomyelitis, should make errors in diagnosis impossible. Idiocy or other forms of mental weakness and epilepsy are among the remote after-effects of cerebral palsies; these are sequelæ almost unknown after poliomyelitis. Paralysis from nerve-injuries received at the time of birth, or similar peripheral nerve-lesions occurring at subsequent times from dislocations or other traumatism, as well as the paraplegic spastic paralysis of compression myelitis, can only be confused with the paralysis of poliomyelitis where careful examination is not made.

The prognosis of infantile spinal paralysis is favorable as to life, unfavorable as to complete recovery from the paralysis. There are, however, not a few reported instances of complete restoration of power to the paralyzed limbs. The milder the case and the more nearly the symptoms approximate those of neuritis, the greater the likelihood of recovery. The majority of fatal cases, on the other hand, are those which give clinical evidence of a cerebral complication.

The reasonable expectations in any typical case of poliomyelitis are: That the child will recover from the acute illness; that the paralysis will

rapidly diminish in extent and in severity until a certain point is reached, and that the degree of improvement after this will be very slight in neglected cases; very considerable in cases which are judiciously and persistently treated.

It is always possible by treatment to prevent the contractures, deformities and extreme incapacity so common in the cases which are allowed to pursue their downward course unmolested.

The treatment of acute anterior poliomyelitis during the stage of febrile invasion is much the same as that employed in other forms of bacterial infection. Thus, one employs a mercurial purge, rest in bed, acetanilid or phenacetin to reduce fever and alleviate pain, with the addition of quinine in the event of suspected malaria. An ice-bag may be applied to the spine and the affected limbs enveloped in cotton batting. Counterirritation to the paralyzed limbs is useless. Of specific remedies we have none. The nearest approach is afforded us in the salicylates, the administration of which in quantity sufficient to produce the full physiological effect of the drug is unquestionably beneficial, and to a certain extent curative. Wharton Sinkler of Philadelphia has recently reported a case of this disease in which complete recovery followed the administration of sodium salicylate.

After the fever has subsided tonics and a nutritious diet are indicated, and as soon as all the tenderness has disappeared the limbs should receive systematic massage. This may be advantageously supplemented by a daily rubbing with cod-liver oil. If, as is often the case, the services of a skilled masseur cannot be obtained, some member of the family may be taught to give a very useful rubbing. Passive movements are also to be employed, and the child kept in the open air as much as possible. Faradic electricity cautiously used in a manner which will produce most efficient muscular contractions with the least discomfort is of great value, the object of this, as in the use of massage, being to prevent muscular atrophy. It should be remembered, however, that electricity during the early stage of the disease is positively contraindicated, and that at no time should a stronger current be employed than is necessary to produce distinct muscular response.

In cases in which the deformities have already occurred, much can be done toward correcting them by the use of properly-fitted orthopedic apparatus. Surgical procedures have also in such cases been resorted to with some benefit, the modern operation being the transplantation of tendons, *i. e.*, separating the paralyzed muscles from their tendons and reattaching these tendons to healthy muscles.

I would, in conclusion, insist that judicious treatment, properly and patiently carried out for months, will in all cases result in a degree of improvement far greater than in the beginning seemed possible. No case of infantile spinal paralysis, however unfavorable, should be regarded as beyond the reach of remedial measures.

THE TREATMENT OF WOUNDED AT SEA.¹

By BELGRAVE MINNIS, M.D.,
INSPECTOR-GENERAL, R. N.

It appears to me a happy omen that the inauguration of the Navy, Army, and Ambulance Section should take place at a time like the present, when the great war—now we trust nearly at an end—has directed special attention to its three subdivisions, namely, medicine and surgery, in relation to the services, and ambulance in connection with both, and likewise with civil life, particularly in large towns. A goodly supply of papers on these and kindred subjects will claim your attention, but I notice with regret the absence of one on a subject which I consider would be well worth the trouble of writing—namely, on the means at the disposal of the naval medical officer for the treatment of the injured on board a man-of-war, more especially during an action.

Now, before I enter upon this subject, I should like to make a few remarks on the light in which the naval medical officer is regarded by his fellows in civil life. Experience of the medical press, extending over a somewhat lengthened period, has left the impression on my mind that there is a belief amongst our brethren in civil life that the naval medical officers, taken as a class, are either behind the times professionally, or are credited (from lack of zeal) with neglecting to avail themselves of modern discoveries, both in medicine and surgery, and that this is due in great measure to absence for lengthened periods from the schools.

If I have rightly interpreted the meaning conveyed in the medical press, I trust you will believe me when I state that you do us an injustice. It is true that from the very nature of his calling the naval medical officer is away at times for a period of three or four years; but, on the other hand, it should be borne in mind that there are sick in other countries besides Great Britain, and studying familiar diseases under different climatic conditions, or cholera, yellow fever, plague, and other diseases in countries where they are epidemic, with the methods of treatment adopted by those who have lived the whole of their professional life in their midst, modifications in some ordinary operations and substitution of new ones amongst the profession abroad is surely worth something. Operations at foreign hospitals can always be attended, and practitioners and hospital surgeons are, in my experience, ever willing to answer questions, and to show you their cases where possible. I have not said anything about his own patients, which, if his ship is a large one, supply him with a heterogeneous practice, in addition to a capital operation occasionally. From what I have said it should be seen that the naval medical officer need not of necessity get rusty. I have not mentioned that in addition he has the medical press, foreign as well as English, nor

¹ This and the following brief addresses, delivered at the annual meeting of the British Medical Association at Ipswich, July-August, 1900, are supplied through the courtesy of the *British Medical Journal*.

that on his return home provision has been made for seniors and juniors alike to pass through a post-graduate course at the metropolitan hospitals of Great Britain and Ireland.

Now let us return to the question of the means at the disposal of the naval medical officer for the treatment of the injured on board a man-of-war, more especially during an action. To grasp the situation fully it must be borne in mind that the essentials of a fighting ship may be said to comprise the largest percentage of armament, offensive and defensive, combined with capability of rapid motion and a steady platform. So far as our present knowledge goes, these conditions can only be obtained at the expense of space; or, in other words, the more effective a fighting machine the ship is, the less space is available for quarters and accommodation for the sick.

Now, necessary as light and fresh air are to all of us, in the case of the sick on board ship it will easily be understood that this necessity is more urgent. But light and fresh air can only be obtained in sufficient quantity above the water-line, and to place the sick quarters above the water-line, amidst the hurly-burly of a sea fight, traversed by projectiles and wrecked by exploding shells, is of course out of the question, even supposing that sufficient space could be spared. The alternative is treating the sick and injured below, which means a limited amount of fresh air, and that almost invariably supplied by mechanical means, artificial light, rapidly deteriorating atmosphere, and the by no means unlikely intrusion of a torpedo or of the ram of a neighboring ship. It will doubtless be said that this condition exists only during war time, and that under ordinary circumstances plenty of space could be found on deck. Sufficient accommodation is, as a matter of fact, already set apart for the treatment of the sick, with ample light and fresh air, cots, and other fittings of recent and constantly improving designs, and in some cases electric light; but it must be remembered that for the reasons previously mentioned these peace arrangements must be vacated in war time. Now, as permanent quarters for the sick on board a fighting ship, situated in such a position as to be freely supplied with fresh air and light, are practically an impossibility, it follows that the fitting up of apparatus, and the means of utilizing modern inventions are likewise practically impossible, and therefore the naval medical officer cannot avail himself of their use.

In fact the naval medical officer is not to be judged by the ordinary standard. He works under great disadvantages. Take an ordinary operation. A moving patient on a moving table, a moving operator standing on a floor changing its slope laterally and fore and aft, assistants automatically altering their positions in relation to the patient, in retaining the upright position or their equilibrium; tracheotomy by the light of a candle or lamp, the patient being in a cot, or possibly in a hammock; hernia to be operated on, possibly during bad weather, for it is the nature

of things that on board ship accidents should most frequently occur when there is most motion, and the decks are wet and slippery; fractures to be retained in position under the same adverse circumstances. As for lack of zeal, a collection of the novel splints and appliances to be found on board ships on return from out-of-the-way foreign stations would testify not only to the zeal of the naval medical officer, but also to his resourcefulness, for, be it remembered, he cannot send into the next street for a second opinion, nor to the instrument-maker for special appliances.

Before I bring these remarks to an end, I may add that it is, I believe, intended in the future to supplement fleets and squadrons in war time with hospital cruisers, not merely transports for the injured, but veritable floating hospitals with steam power, and fittings and appliances up-to-date. During an action these ships would keep out of range but sufficiently close to collect the wounded when the fight was over, and sailing under the regulations of the Geneva Convention would be free from molestation or capture.

SOME PROBLEMS IN RURAL SANITATION.¹

By JOHN C. THRESH, M.D.,

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ONE of the most interesting problems which has engaged the attention of scientists during recent years is that of the period for which man will continue to live upon this earth. There is a general consensus of opinion that a time will come when the earth will cease to be habitable, but there is a wide divergency with reference to the length of the period which will elapse before the human race disappears. There are those who think that some great catastrophe may terminate our existence at an early period, others calculate that we are using up the available oxygen in the atmosphere so rapidly that in the course of two or three centuries there will not be sufficient left to support life. At the opposite extreme we have those who teach that man may continue to inhabit the earth for the millions of years which will elapse before the cooling process solidifies all the water on the globe. These speculations however interesting have little bearing upon public health, but there are other questions somewhat analogous in character which sanitarians will have seriously to consider. One of the most important is the continued increase in population, an increase almost exclusively confined to towns and cities. The effect of overpopulation is well exemplified in the two countries in which the population has attained its maximum density, India and China. The result is periodic famines, generally associated with pestilence in some form, affecting wide areas and millions of people.

The earth's population is increasing steadily, and in certain countries with great and continu-

¹ Introductory remarks delivered at the opening of the Section of State Medicine.

ously increasing rapidly. The production of food cannot for any very lengthened period keep pace with the increase of population, and it may be that famine and disease will more and more frequently occur and keep down the population within the limit of the available food supply. The growth of large manufacturing centers with the influx of rural laborers into towns, and the general neglect of purely agricultural pursuits, must in this country produce some marked effect. That this will neither conduce to increase health nor longevity can scarcely be denied; hence it is a result which we must deplore. The country has already reached a condition in which the population far exceeds that which can be fed by its produce, and the condition is being aggravated year by year by the increasing population and continuous neglect of agriculture, and I am afraid will continue until we receive a rude awakening, an awakening which in all probability will stagger humanity.

Our purely rural population is slowly decreasing, our urban population is rapidly increasing; therefore year by year the feeding problem becomes more serious. This is a fact so well recognized that its very familiarity is producing contempt. It is well, however, that we should from time to time be reminded of the fate upon which we appear to be almost blindly rushing. Sanitary improvements, unfortunately, tend only to aggravate the evil and hasten on the day of reckoning. So much attention has been devoted to urban sanitation that the town dweller enjoys now many advantages not possessed by those who remain in the country, advantages which tend to prolong life, increase health, and, generally speaking, make life better worth living. For example, in most of our towns every house is efficiently drained and abundantly supplied with pure water, rendering it possible, with the minimum of trouble, to keep a house and its surroundings sweet and clean, and therefore healthy. In our villages and rural districts nuisances from the improper disposal of filth abound on every side, and the water supplies too often are unsatisfactory in quality as well as in quantity.

Land is going out of cultivation and decreasing in value, yet it is often impossible to obtain a small quantity to effect sanitary improvements. Let a plot be required in order to provide cottages with ground upon which to dispose of the slops and house refuse, or for the erection of better houses for the laborer, or for the erection of an isolation hospital, and it is often almost impossible to obtain it. Landowners refuse to sell small areas for such purposes, yet, in my county at least, farms are sold at ridiculously low prices, and the speculator who purchases, recognizing the demand for small plots, promptly cuts up the farms and sells the land at an enormous profit. The dog-in-the-manger policy so common amongst landowners and their agents I cannot account for, but it is a fact which is well recognized and deplored.

How to bring back people to the land is one of the greatest problems of the age. It is far too large a subject for me to dwell upon, but I am convinced that one of the chief requirements for restoring prosperity to our rural districts is increased facilities for acquiring small areas of land for sanitary improvements. Some years ago one of my sanitary authorities succeeded in acquiring a small amount of land behind a group of rural cottages which had no gardens. A portion was allotted to each cottage, the conveniences, which had been near the back doors, were removed to a safe distance, and there was sufficient ground to permit of the slops, house refuse, etc., being disposed of without causing any nuisance, and the old defective drains with the accompanying ditch nuisances were abolished. Twice since the same authority has made repeated efforts to carry out similar improvements in other places, but the necessary land could not be obtained. With a sufficiency of land adjoining or near each house, the necessity for sewers in most of our rural districts would be avoided.

In compact villages, urban in character, drains and sewers will, I am afraid, still remain a necessity. The expense of such drains and sewers would in most cases be willingly borne, but the cost of obtaining sufficient land upon which to dispose of the sewage is one of the most frequent excuses for not carrying out such improvements. Land not worth £5 per acre suddenly acquires a value of £100 or more per acre and this together with the trouble and worry consequent upon the adoption of any scheme of sewage disposal prevents the adoption of such schemes. If the numerous experiments now being made on bacteriological lines result in the discovery of some simple process, requiring but little land, for disposing of sewage, a great advance will be rendered possible in rural sanitation.

The supply of water in our cottages is even a greater difficulty. Sanitary authorities are not only averse to the expenditure necessary to provide a public supply, but too often also averse to causing landlords to provide such a supply when it can be done at what is defined by Act of Parliament as a reasonable rate. The effect of such a policy has been well exemplified recently in a rural district in which I am interested. A group of cottages derived water from a brook, one of the tributaries of which, at a higher point, received a certain proportion of the slops from the drains of a village. A case of typhoid fever occurred in the village, and about a month later an outbreak of typhoid occurred in the group of cottages, and resulted in several deaths. Some five years before I had endeavored to get a proper water supply for these cottages, but an influential member of the council opposed this as being unnecessary. Notwithstanding my predictions of future trouble, the resolution to call upon the owner to provide a proper supply was lost. I only hope the lesson taught by this epidemic will not soon be forgotten. The cost to which the

sanitary authority and others have been put is far greater than would have been required to provide a supply of good water. The multiplication of dairy farms also is increasing the necessity for an abundant supply of pure water in rural districts; but as I shall have again to refer to this subject, I will not further enlarge upon it now. I regard it as one of the most important requirements of our villages, and one which is imperatively necessary if we hope to get back any considerable portion of the population from the towns.

Another very important requirement, I might almost say the vitally important requirement, is decent cottages for our rural laborers. Many Acts of Parliament have been passed having for their object the better housing of the working classes. Their utility in rural districts has been practically *nil*. Those who had the drafting of them worked upon an utterly erroneous assumption. They evidently were of opinion that unless carefully restrained sanitary authorities would be infected with a mania for building, and that cottages would spring up like mushrooms in places where they were not required as well as in those in which they were really needed. A sanitary authority, therefore, can do nothing until it has obtained the consent of the County Council. No facilities are given for acquiring suitable land at a reasonable cost and with little trouble. The Local Government Board must next be satisfied with every detail, etc. The result is that sanitary authorities wishing to provide cottages are only too glad to let the matter drop when their clerks point out the amount of circumlocution entailed and the trouble and expense involved. What is wanted is an Act which will encourage sanitary authorities to build and offer them every possible facility for providing decent accommodation for the laborer with the least possible trouble and at the lowest possible cost.

One great difficulty in the way of providing cottage accommodation by sanitary authorities was well stated by certain gentlemen appointed recently by the Essex County Council to hold a local inquiry under the Housing of the Working Classes Act. They stated that many cottages were let with the farms, and quoted an instance in which cottages worth 4s. 6d. per week were let by the farmer to his men at 1s. per week. In other words, they say: "The men's real wages were 3s. 6d. per week higher than their nominal figure, and he (the farmer) succeeded in retaining his men without appearing to break the local wages rate. If the farmers would charge a rent representing the real value, and pay a proportionately higher wage, there might be some chance of private enterprise stepping in to provide the necessary cottages, but the present system destroys private enterprise, and if it be persisted in the housing conditions in such districts must continue to grow worse, and the tendency towards the depopulation of the rural districts be increased." On the other hand, the Commission-

ers point out, if sanitary authorities provide cottages and let them at such low rents, the farm laborer is being subsidized out of the rates. This fact alone is sufficient to retard necessary action, and certainly prevents any rash action on the part of a sanitary authority. The whole problem bristles with difficulties, but that is no reason why it should not be attacked. It is a reason, however, for suggesting that before any new Bill is presented those who draft it should know something about the subject. We shall welcome the discussion on this subject, which will be opened by my friend, Dr. Tew, at one of the meetings of this Section. The effect of the present defective accommodation upon the mental, physical, and moral well-being of the inhabitants is too well known to need repetition. The housing problem is of importance not only to the rural laborer but to the whole country, and should be treated as a national problem.

My apology, if any is needed, for touching upon these questions relating to rural sanitation in my opening address is that we are meeting in a large agricultural center, in the center of a group of rural counties, in which these subjects are of the deepest interest, and that I, as medical officer of health to one of these counties, am myself more particularly interested in their study, and am desirous of doing what little I can towards improving their sanitary condition, and bringing about a new era of prosperity.

MODERN PATHOLOGY.¹

By E. E. KLEIN, M.D., F.R.S.,

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PATHOLOGY, in its analysis of the nature of the tissue changes, has been influenced, it is admitted, to a not inconsiderable degree by the progress made in bacteriology within the last two or three decades.

Pathology, no less than, and in no way different from, other biological sciences, intent on answering the "what," as also the "why," asks not merely what is the intimate nature of a particular change and aberration of a tissue or organ from its normal or physiological state, but also, and in a higher degree, why this change, and what its cause? Why a particular alteration in one, another in another instance?

Microscopic and experimental analyses have both been active in discovering some fundamental facts, but have left numerous gaps in this study, and it is by the aid of bacteriology—since it became, thanks to the foundations laid by Koch, an exact science—that these gaps are being closed up, or at any rate that the manner and method are indicated by which these gaps may, and probably will, be filled up.

The time at my disposal does not permit of more than illustrating these propositions by a few of the more striking examples.

¹ Introductory remarks made at the opening of the Section of Pathology.

1. *Inflammation*.—For more than a century inflammation, by the aid of the improved microscope and by experimental work which had occupied a host of active minds and of great experimentalists, was being analyzed in all its elements; the part that the vascular system, that the tissues, that the nervous mechanism play in establishing the peculiar alterations constituting the phenomena of inflammation, suppuration, and their sequelæ; thereby an enormous number of facts were brought to light, by which the understanding of these particular aberrations from and return to the normal conditions became clearer, or were believed to have become well understood. It is now admitted, however, that with the exception of traumatic, thermic, and chemical agencies, the chief, if not the sole, cause of the changes of the vascular apparatus and the surrounding tissues constituting inflammation, inclusive, of course, of suppuration, are micro-organisms, which, either by their chemical activity—producing substances which exert a toxic action on the vascular system or the tissues, or both—or by the toxic nature of the protoplasm of the microbes themselves, lead to the abnormal interaction between the vessels and the tissues, manifesting itself in the exudation of fluid and formed elements of the blood and the progressive or retrogressive changes of the tissue elements themselves.

It is one of the best-proved acquisitions in bacteriology that many microbes, either when growing and multiplying outside or within the tissues, produce toxins which in the tissues set up the phenomena of inflammation either locally or generally. This applies not only to those microbes which are specially and in the narrower sense connected with suppuration and abscess—for example, various species of pyogenic staphylococci, streptococci, and bacilli, but also to other specific pathogenic microbes like the diphtheria bacillus, the tubercle bacillus, tetanus bacillus, typhoid bacillus. Koch's tuberculin, the diphtheria toxin, the toxins of many other microbes produced in the test tube, and then injected into the tissues produce typical inflammation. The same has been shown of the dead protoplasm of many microbes—for example, tubercle bacillus, cholera vibrio, bacillus pestis, and others, as also of some ordinary saprophytes, namely, that the dead bodies of these microbes contain pyrogenic and pyogenic substances capable of producing typical inflammation.

Another set of phenomena of which an explanation is supplied by bacteriology is one well known in the study of inflammation, that is the greater or lesser number of leucocytes in some inflammatory foci. It is well known that while some inflammations are characterized by copious transudations with few leucocytes, others on the other hand are associated with copious accumulation of leucocytes, as in suppuration. The phenomenon of chemotaxis seems to offer a good explanation for these differences, that is to say, while some microbes or their toxins powerfully attract leucocytes from the blood and connective

tissues, others have no such effect or possess even the reverse, namely, negative chemotaxis. In a similar manner Pfeiffer first classified the effects of chemical substances on lower organisms.

2. *Necrosis*.—The most valuable and earliest observations were those of Roux and Yersin, showing that the toxin produced by the diphtheria bacilli has a powerful necrotic action on the tissues. The further demonstration of the actual presence of the toxin in the diphtheritic membrane supplied at once the simplest and most feasible explanation of the necrotic condition of the mucous membrane in diphtheria, namely, the multiplication of the diphtheria bacilli at a particular locality—be it the fauces or larynx, or trachea, or bronchi, or any other membrane—causes the production of the toxin, which in its turn causes the inflammation and further the necrosis of the membrane. But this action, namely, localized inflammations leading to gradually progressing necrosis of the tissue elements, is not peculiar to the diphtheria bacilli and their toxins, for it is almost a common character of many if not most pathogenic microbes; it is observed in connection with almost all hitherto known pathogenic bacteria, tubercle, glanders, leprosy, pseudo-tubercle, pathogenic cocci, and bacilli of various kinds. It is this progressive necrosis of the tissue following the typical symptoms of inflammation, congestion, stasis, diapedesis, and emigration of leucocytes, which is observed, granted the necessary number and virulence, as the effect of the action of many pathogenic microbes, inasmuch as at a particular locality—primary as well as secondary foci—so long as their multiplication proceeds and their toxins are being produced in increasing amounts the necrosis of the tissue spreads into larger and larger areas. In non-microbial inflammations, on the other hand, this necrosis is local and circumscribed, being due to the direct action of the noxious agent—thermic, chemical, or traumatic—and its action is limited to the part actually attacked or its immediate surrounding. The necrosis itself appears in both series, however, of the same essential character, namely, coagulation of the protoplasm of the tissue cells, inclusive of the vessels themselves, and a gradual disintegration and destruction of the cells as also of the intercellular ground substance. These phenomena have been well observed in the case of a number of pathogenic microbes. Another not less important set of appearances associated with the necrotic change caused by bacteria is the secondary leucocytosis and suppuration; and for this the chemotactic action that the necrosed tissue exerts on leucocytes, attracting these for one reason or another, probably as scavengers and removers, offers a ready explanation.

3. *Specificity of Cell Secretions*.—Until recent years it was generally considered that a specificity of cell secretions is one of the fundamental phenomena of the physiological or normal tissues. Behring, Kitasato, Brieger, Roux, Ehrlich, and many others have, however, shown that under the

activity of many pathogenic bacteria and their toxins in an affected body a curious and important series of secretions on the part of the cells of the tissues takes place which is as specific as those others associated with the normal life, I mean, the production of specific antitoxins and the production of specific agglutinins. It was further shown that not only under the stimulation of the cells by bacteria and their toxins are those specific antitoxins secreted, but that organic substances like abrin, ricin, venom, are capable of stimulating the cells to a like production of specific antitoxin. Moreover, quite recently a further highly interesting series of facts have been brought to light, namely, that particular tissue taken from one animal body and introduced into another causes a specific reaction, showing itself in this that the living cells of the latter produce under the particular stimulation substances specifically acting on the particular tissue that has caused the stimulation. Illustrations: (a) Injection of ciliated epithelium of the trachea of the ox into the peritoneal cavity of guinea-pigs produces a definite change, inasmuch as in a second injection of similar epithelium the ciliary movement is stopped and the cells destroyed in a markedly shorter space of time than in a normal animal; the same action takes place *in vitro*; here the same difference between normal serum and specific serum is demonstrable. (b) Metchnikoff shows that rat's spleen injected into guinea-pigs produces serum which is capable of agglutinating and dissolving leucocytes of the rat. (c) Funck shows that repeated intraperitoneal injections of rabbit's spleen into guinea-pigs in ascending doses produces a serum which *in vitro* has specific cell-destroying—cytolytic—action on both lymphocytes and polynuclear leucocytes of the rabbit, whereas red bone marrow of rabbit produces when administered in the same way a serum which has a greater action on polynuclear leucocytes than on lymphocytes. From these experiments it is clear that by certain pathological processes the tissue cells are capable of being so altered that their secretions assume a specific action not possessed by them before.

TROPICAL DISEASES.¹

By COLONEL KENNETH MACLEOD, M.D.

SINCE the last meeting of this Section events have occurred which have emphasized the significance and enhanced the importance of its work. The war in South Africa has stimulated into vivid reality the unity and solidarity of the British Empire. The imperial idea implies not only a community of interests—social, commercial, and political—between the mother country and her colonies and dependencies, but also a community of suffering; and as tropical conditions and tropical diseases prevail in Greater Britain to such a large extent, the study of these

as they affect both the governing and the governed has come to be recognized as a matter of vital and cardinal necessity. This has been fully acknowledged by the able minister who presides over the Colonies, and who has realized more clearly than any of his predecessors the immense importance of inquiry and education as regards tropical pathology and hygiene. The Government of India has also awakened from its torpor, and taken thought and action in the same direction by encouraging research, training men in bacteriological methods, establishing laboratories, appointing commissions, and promoting special investigations.

A knowledge of the pathology and pathogenesis of disease must obviously precede and guide preventive and curative effort; and it cannot be too loudly proclaimed that this knowledge can only be obtained by systematic scientific research. The days of casual and statistical observations and dissertations have gone, and it is now universally understood that nothing will avail for the solution of pathological problems except the undistracted work of trained agents provided with ample opportunities, facilities, and appliances. The recent history of malariology, to employ a new and expressive term, is a signal illustration of the dependence of sanitary and therapeutical endeavor on pathological discovery. Laveran in 1880 furnished the key to the morbid processes which in malarious disease take place within the body by the discovery of the plasmodium malariae. Manson and Ross pioneered the brilliant investigations which have revealed one, if not the one, means by which this organism leaves the infected subject, lives and breeds in outer nature, thus compassing the communication of what must now be admitted to be an infective disease. It is interesting to observe how this knowledge is being at the present time turned to practical account, and how it explains and gives precision to methods of prevention and cure which had previously been resorted to empirically. Koch in the Dutch Indies and German New Guinea has been attacking the plasmodium within the human host, and claims, by destroying it in that phase or stage of its existence, not only to cure the individual, but to reduce greatly, or altogether abolish, the prevalence of malarious disease in the community. Sambon and Low in Italy are addressing themselves to the extrasomatic life of the parasite, and endeavoring by special contrivances and precautions to cut the morbid circuit outside the body. Koch's labors have an intimate bearing upon the subject which has been selected for discussion at this meeting, and will, no doubt, be noticed and criticised by those who take part in it. The results of the proceedings of Drs. Sambon and Low will be eagerly watched, as they will contribute an important aid to the solution of the question whether the Anopheles is the only medium of malarious infection, and, if so, whether this occurs invariably by inoculation.

The South African war has forced into prominent and painful attention two diseases which,

¹ An address delivered at the opening of the Section of Tropical Diseases.

although they cannot be called tropical diseases, manifest themselves with special severity as regards incidence and fatality under tropical conditions—namely, enteric fever and dysentery. The theater of the war—the uplands of South Africa—cannot be classed, either as regards position or physical characters, as tropical. Malarious disease, the special and predominant product and index of tropical countries, is conspicuous by its absence among the causes of disability and death occurring in the British army of South Africa. But the meteorological conditions which obtained during the early months of the campaign were most aptly described by the term "tropical." Sunstroke and sun fever were very common. I have endeavored to ascertain whether these cases were all or mostly cases of heat shock, and whether any considerable number of them presented the phenomena of heat fever—so-called "siriasis"—and, if so, whether these occurred in epidemics or appeared to be communicable. I regret to say that I have not succeeded in obtaining any information on these points. The cases which I have met with at Netley have presented a similar history and similar sequelae to those received from India. Perhaps, when the medical history of the campaign comes to be compiled, some facts bearing on these questions may be forthcoming. I allude to the matter here and now in the hope of eliciting information.

That enteric fever existed in South Africa and was apt to prevail in South African towns and cantonments during the summer months was well known, and its appearance among the troops engaged in this war was fully anticipated; but the excessive prevalence of the disease in a country and climate with a reputation for exceptional healthiness has come as an unpleasant surprise. No doubt these circumstances and exigencies of warfare are mainly responsible for the heavy tribute of sickness and death which enteric fever has levied. War shares with famine the malignant power of enhancing the susceptibility to whatever infection happens to be present at the place and time.

Enteric fever has been in grim evidence during recent wars on the Indian Frontier and in the Egyptian Soudan; but malaria, cholera, yellow fever, and dysentery have on other occasions been stimulated into disastrous activity by war. So with famine, malarious disease, smallpox, diarrhea, dysentery, and relapsing fever have attended or followed it, and at the present time cholera and plague are raging among the famine-stricken in India. The infection of enteric fever seems to be ubiquitous, portable, and peculiarly facile and subtle; and perhaps the most urgent question of the hour is how to mitigate its prevalence in the British army, in which in times of peace it causes one-third of the total mortality.

It is important to note that a very marked contrast exists between the ordinary incidence and mortality of the disease in temperate and tropical or subtropical countries—in England and Canada

on the one hand, and in India and Egypt on the other. A similar contrast appears in the French army stationed in France and in Northern Africa. How much of this great excess is due to tropical conditions, topical and climatic, and how much to remediable sanitary defects it is not easy to say.

But, side by side with the excessive suffering of the army in India we are confronted with the remarkable fact of the immunity of the native population. Whether a similar immunity exists among indigenous races and habitual residents in South Africa is an interesting question. Evidence seems to indicate that it is so. The native immunity in India, though not absolute, is undoubted; its cause has not been satisfactorily ascertained. It has been attributed to habituation to minute dosage of the contagium, to protection conferred by attack during infancy and childhood, and to racial resistance acquired in the course of generations through both these influences. Some experiments by Freyer and others indicate that natives give positive reactions to Widal's test; but more extended and exact investigations on this point are desirable. It is quite certain that the immunity of natives is not due to superior sanitary conditions. Whether a similar immunity—temporary or permanent—can be engendered in European subjects by a process of inoculation such as has been devised by Professor Wright, of Netley, and practised on a large scale among soldiers proceeding to the seat of war, is a question, the reply to which is awaited with eager anxiety. Some figures obtained from Ladysmith have been published by Professor Wright, which seem to show that some immunity is conferred by these inoculations, but though encouraging, they are by no means demonstrative. Similar procedures for creating an immunity against cholera and plague, initiated by Professor Haffkine, have in India been attended with satisfactory results. But although a certain measure of preventive success has been obtained by these inoculations, the employment of them appears at present to be practicable and useful only as an emergent expedient in the presence of a serious outbreak; and the prevention of cholera, plague, and enteric fever on a large scale must apparently be essayed on other lines and by other methods.

Dysentery has been very rife in the South African army, but the disease has exhibited mostly a mild type and been amenable to treatment. In some camps it has presented the aspect of an epidemic or infectious disease; but whether the infectiousness is apparent or real—due to common exposure to certain noxious conditions or to communication from man to man of some specific contagium—it is impossible in the absence of knowledge regarding the nature of the contagium or contagia of dysentery to say. The dysentery of war and famine is believed to be infectious, but notwithstanding much able and laborious research we have yet much to learn concerning the pathology and causation of dysentery. Imperfect conservancy, foul water, alter-

nations of temperature, exposure, fatigue, and bad food, which are undoubtedly adjuvants if not factors of dysentery have been in baneful operation in this war, and a new disease resembling dysentery has been described under the name of "dust colic." This seems to be a muco-enteritis caused by the swallowing with water and food of irritating particles of grit blown about by dust storms. The presence of the grit in the evacuations does not seem to have been sought for or found.

The persistence of plague in India and the appearance of the disease for the first time south of the equator—in Mauritius, South Africa, South America, and Australia—are events deserving of special notice. The disease has during its present prevalence confined itself mostly to warm and hot countries, and, though not exclusively a tropical disease, nor apt in the tropics to be at its worst when conditions are most typically tropical, it appears to find in tropical countries and circumstances the most favoring environment. It is curious to remark that, while in India natives appear to be readily susceptible to the infection of plague, Europeans, though not absolutely insusceptible, exhibit a comparative immunity—the reverse of what happens as regards enteric fever. This immunity is doubtless what I venture to call a sanitary immunity, due to a purer personal domestic and social life, and perhaps to circumstances and habits rendering admission of infection less easy. This kind of immunity is also observable in some places—in Calcutta, for example—as regards cholera. How far an immunity of this sort is capable of being achieved as regards the infection of enteric fever, it is not easy to say. Certainly it has not been accomplished as yet in India or Egypt. The Bermudas used to render the highest ratios of enteric prevalence and mortality, but within recent years considerable reduction of these rates has occurred through sanitary reforms in the matter specially of water conservancy and sewage disposal. Similar causes have reduced the burden of enteric suffering in the French army of Algeria, and the power of sanitation has also obtained signal illustration in the banishment of beriberi from the Japanese navy. Great Britain appears also to have acquired an immunity against cholera through sanitary reform and effort. These experiences are full of encouragement and hope.

I trust that I have succeeded by these discursive observations in showing that recent events have expanded the scope and aim of our work in this Section; and it seems to me fitting that we should at the commencement of our sectional labors remind ourselves of what these are. Our concern is not only with exclusively tropical diseases, many of them strangely named and imperfectly investigated and understood, which may be encountered and contracted in hot places where Europeans are compelled to reside for purposes of protection, administration, or commerce, and are not as a rule met with outside of the tropics. More important are those diseases, originally or

essentially tropical, which may be disseminated by intercourse with the tropics, and may prevail for a time in extratropical localities in which they are not habitually present. And, finally, there, are the diseases which are not specially tropical, but which are liable to be aggravated in prevalence or severity by tropical conditions. These three classes represent a wide field of research, and, in addition, interesting questions arise as regards diseases which, common elsewhere, are rare or unknown in tropical countries.

The field of study thus presented has its scientific and humanitarian aspects, and its cultivation has become an essential part of the business of imperial administration. It embraces not only acute infections and the sequelæ or constitutional incapacities resulting therefrom, but includes also those conditions affecting health and life which are vaguely designated as climatic, remediable only by adaptation, or which arise from sanitary defects or neglects capable of more easy amelioration. Hygienic improvements, personal, domestic, and social, have undoubtedly raised the standard of health and the value of life in the tropics, and residence and service in hot countries offer fewer and less formidable risks than they did in times past. But behind the question of individual impunity looms the question of colonization or the continued vigor and vitality of the race when transplanted from temperate to torrid zones. The solution of these weighty problems constitutes the reason and purpose of our distinct sectional existence.

CLINICAL MEMORANDUM.

A CASE OF DOUBLE VAGINA AND DOUBLE UTERUS: FOUR PREGNANCIES.

By HERMAN E. PEARSE, M.D.,
OF KANSAS CITY, MO.

THE woman who bore this deformity was ignorant of its existence; moreover, she passed through four successive pregnancies in safety. The septa had been almost obliterated by the successive acts of parturition and only remains of the former condition could be found.

Deformities of the genital tract are of sufficient frequency to enable them to be generally recognized, yet are rare enough to lend interest to their occurrence. Double, duplex, bipartite and bicornate uteri are frequently reported. Gould and Warner, in their work on "Anomalies and Curiosities of Medicine," state that complete enumeration of cases reported would cover several pages. This is doubtless correct, as is also the fact that many cases are never recognized.

This case is of interest from the fact that for sixteen years the woman had fulfilled the duties of wife and mother, bearing four children at term and in comparative safety. The case is briefly as follows: On January 10, 1900, I was requested by Dr. A. N. Magruder, of Pittsburg, Kansas, to examine Mrs. K., aged thirty-six years, married

and the mother of four children. She was suffering from uterine catarrh, due to cervical laceration, and I was asked to express an opinion as to whether or not this condition was the cause of certain "head pains" that had existed for eight years and that had made their appearance about the time of the birth of her last child. She stated that she had been married sixteen years and had four confinements. The first two children had been vigorous at birth; the third had been puny, but had reached childhood in safety. These three are to-day alive and well. During these three pregnancies she had suffered much pain and uneasiness in the lower abdomen and pelvis. In all three cases labor had been protracted and recovery slow, but forceps had not been used. The fourth pregnancy gave her more pain than any of the preceding ones and was marked at the middle of the ninth month by tearing pains and smart hemorrhages. This continued at intervals for about six weeks, when (she says a full month beyond her normal period) tardy labor developed and the fourth and last pregnancy terminated with a stillborn child. It seemed to be of perfect development and showed no sign of disease. She made a poor recovery and has had "head pains" and poor health since, although able to do her own housework.

Examination showed a normal vulva, with a slight ridge extending back from the fourchette and a corresponding one, so large as to resemble a prolapsed urethra, on the anterior wall. In the vagina were the remains of a complete septum, showing that two perfect vaginae had existed and had been merged into one by the rupture of the septum. The cervix showed the remains of the double formation, but the right uterine cavity could only be traced about one and one-half inches, while the left was much deeper. The septum between them had been torn away for some distance and the laceration had extended laterally across and involved the wall of the cervix on the right. On the left the laceration had extended deeply into the vaginal wall. A large, bleeding, granular surface, caused by these gaping lacerations, made it very difficult to examine them accurately, and, moreover, the patient's position and the light were both faulty. There was such a degree of inflammatory adhesion and deposit about the uterus and to its left that I was unable to decide as to the condition at the fundus. It seems probable that the four pregnancies had taken place in the left uterus, and that inflammatory changes had so fixed the cervix in the last pregnancy that laceration at the last month had caused the pain and bleeding that then occurred and possibly delayed the labor one month, as the patient averred had been the case.

The patient, upon being informed of her deformity, stated that a woman physician (I was the first male physician she had consulted) soon after her marriage had examined her hurriedly one day, and told her she suspected some such condition as I described. She had moved away

soon after and had never been examined since except at her deliveries, when nothing had ever been said of the matter by any of her accoucheurs and she had supposed it all a mistake.

MEDICAL PROGRESS.

Transmission of Tuberculosis.—In a lengthy article, in which he discusses the question of the transmission of tuberculosis through the milk and meat supply under two main heads, *i. e.*, (a) transmission to animals, and (b) transmission to man, J. J. Repp (*Phila. Med. Jour.*, August 11, 1900) formulates the following summary and conclusions. Summary of the evidence which he presents: (1) Tuberculosis may be transmitted to animals through their eating the meat of certain other animals which are tuberculous or by their being inoculated with it. (2) Tuberculosis may be transmitted to animals through their ingestion of the milk of certain cows which are tuberculous, or by their being inoculated with it, both when the udder of the cows is diseased and when it is healthy. (3) Therefore the meat and milk of certain tuberculous animals contain living virulent tubercle bacilli. (4) The tubercle bacilli of cattle are pathogenic for man. (5) Therefore the meat and milk of certain tuberculous animals is capable of producing tuberculosis in human beings who use these products as food. (6) There is no evidence that the converse of these conclusions is true. From the above summary he arrives at the following practical conclusions: (1) *In regard to meat.* The meat of all food animals, especially cattle, is unfit for food when the animal is highly tuberculous; but is safe for food when the animal is only slightly or moderately tuberculous, especially so if the meat is well cooked, provided the tubercular tissues are eliminated. (2) *In regard to milk.* (a) The milk of a cow with tuberculous udder is always dangerous for food unless it is well sterilized. (b) The milk of tuberculous cows with healthy udders is sometimes dangerous for food unless well sterilized. Hence milk of tuberculous cows without disease of the udder should always be looked upon with suspicion. (c) Tuberculous cows may be kept for breeding purposes provided they are isolated, even from their own offspring, and their products sterilized before use; or, (d) they may be slaughtered for food under conditions as stated in Conclusion 1. As a general conclusion, the writer says that all legislature and regulation should favor the disposition of tuberculous animals as suggested above so far as milk and meat are concerned.

Puerperal Eclampsia.—In his experience, says J. B. Todd (*Phila. Med. Jour.*, August 11, 1900), cephalalgia is the danger signal of coming eclampsia. A woman may have slight albuminuria and recover under proper treatment, but if during labor and for two days afterward the

patient complains of severe pain in the head there is danger of eclampsia. The writer does not rely in treatment on diuretics, especially digitalis and potassium acetate, as they depress the heart and do not eliminate the urea. He believes hydragogue cathartics are required for this purpose and uses elaterium because it can be depended upon to produce a thorough action. Following the administration of the hydragogue he gives iron and mercuric chloride, as follows:

R Tr. ferri chlor. ʒi
Hydr. bichlor. gr. i.
Ft. sol. Sig. gtts. xii in a capsule every four hours.

The writer believes that morphine is the drug to control the convulsions, provided it is given in sufficiently large doses. He gives from one-half to one and a half grains hypodermatically, and repeats the dose whenever, and as often as, the patient complains of severe pain in the head, whether it has been one hour or longer since the last dose was given. Todd reports ten cases treated in this manner and sums up the results as follows: In six cases after labor there was a single convulsion; all recovered. Of two cases with convulsions during labor, one had a single convulsion and the other several. Both mothers and children lived. In one cases with convulsions in the second month of pregnancy, the patient carried the fetus four months without any inconvenience. In the tenth case, abandoned by an eclectic physician, death ensued before the remedies could act.

Operation Shock and Infection.—Patients who die unexpectedly after successful operations, according to F. B. Twick (*Med. Rec.*, August 11, 1900), usually are the victims of shock alone or of shock and infection, the last named being especially common in the presence of the former. Numerous experiments have shown that when the body resistance is reduced by shock germs which ordinarily are not pathogenic become so and frequently to a virulent and fatal degree. As a means of preventing some of the commoner sources of infection from the skin, a rubber sheet encircling belt-wise the body at the site of operation is suggested. Being non-absorbing it cannot become contaminated like the ordinary laparotomy towels, sheets or spreads, and being impermeable serves to limit shock by keeping the body heat from evaporation. It may be cut flap-wise and the flaps turned down into the peritoneal cavity and secured by sutures, thus protecting the wound-margins, much in the manner the serosa does when brought out of the wound and stitched to the skin. The disadvantages of such a rubber belt summarized are: (1) Prevention of contamination of and by the skin; (2) reduction of the tendency to shock by preventing evaporation. In addition to this a rubber dam can very advantageously be used to shut the parts of viscera operated on out of the general peritoneal cavity. In a gastroenterostomy the stomach and intestine may each be drawn through separate

openings, secured against leaking by rubber bands, the union done, irrigation completed, and the dam removed by cutting. The advantages and features of this are: (1) Absolute exclusion of the abdominal cavity from infection by visceral contents or by outside influence; (2) prevention of excessive escape of visceral contents; (3) partial control of hemorrhage by the pressure of the rubber band or collar; (4) reduction of the liability to trauma and to shock by undue handling of the viscera; (a) covered by the rubber they are less liable to injury; (b) held in position by the rubber bands there is less need of pulling; (c) less evaporation occurs by virtue of the rubber-tissue protection. Natural immunity from infection depends on the resistance and this in turn upon shock, which therefore becomes a very important factor as well as the site, the virulence and quantity of the infecting dose. Of all the combatants of shock heat appears to be the best, if dependence upon one become necessary. Very excellent results have been obtained by the author with soft, flaccid hot-water bags, at a temperature of 48° C., covered with gauze for absorption and introduced into the abdomen as dams to the viscera during laparotomies. The heat not only maintains the body temperature, but irritates the visceral nerve-filaments which certainly maintain vitality. They possess none of the drawbacks of "flooding" a serous cavity, thereby perhaps spreading infection or injuring the endothelial cells. They do, however, present numerous attractive features, namely, (1) continuous application of an even temperature; (2) softness and adaptability to form like a water-bed; (3) removability through a small opening; (4) as a final support of the suture-line they excel gauze and can be removed through a smaller opening and more easily.

After-Pains From Extraction of Teeth.—The diagnosis of the causes underlying this troublesome condition, says C. B. Isaacson (*Med. Rec.*, August 11, 1900) is difficult and for the general practitioner important. The chief factors at work in the trouble are the following: (1) Retention of the pyogenic membrane by more or less adhesive inflammation. The pain is then acute. The treatment is a thorough curetting of the socket with a spoon or dental burr and packing. A good solution to add to tamponnade is:

R Mentholi
Tincturae Iodi
Acidi Carbolic. aa ʒi
Aetheris
Chloroformi aa ʒss.
M. Sig. External use.

(2) Expansion of the osseous walls by the violence of extraction. Cutting away the injured bone, with cleaning and packing of the cavity, usually cures quickly. (3) Fracture of the alveolus. Fragments must be taken away. (4) Sundering of the maxillary process and alveolar margin with tissue laceration, presenting usually

diffuse inflammation, rough bony prominences and pus pockets. Incision of the inflamed gum, removal of sharp points, curetting of pus cavities and packing of them, preferably with iodoform gauze, are the indications. (5) Removal of offending root spicula. (6) Often teeth become diseased when the gums have receded and when removed bare unhealthy bone is left behind. Such must be cut off, when the gum rapidly closes down. (7) Long after removal there may appear pus-burrowings and perforations of the alveolar ridge. Such indicate a sequestrum which demands appropriate surgical ablation. (8) Pains may be due to neurasthenia, syphilis, vagaries of catamenia or of menopause and then demand individual management. (9) Finally, foreign bodies of any description (clot, spicula of bone, food, etc.) may lodge in the cavity and should always be taken out.

Relation of Seminal Vesiculitis to Impotence.—

The three varieties of impotence are organic, psychic, and atonic, of which the last is much the more common. In considering the atonic variety R. Guiteras (*N. Y. Med. Jour.*, August 11, 1900) divides it into the adynamic and irritative classes. The first may follow some injury or disease of the spinal cord or brain or some weakening disease, and the ejaculation is then feeble and accompanied with little sensation. The irritative form is said to be due to a congestion or inflammation of the deep urethra or its annexa, which keeps the lumbar centers in a constant state of excitability so that ejaculation occurs at the moment of intromission or even before. Posterior urethritis, stricture, excessive venery, prostatitis and masturbation are given as causes of the irritable form, but the author maintains that in the majority of cases seminal vesiculitis is by far the most marked pathological condition present. On rectal examination the vesicles are found very tender and swollen. Careful massage will usually cause considerable detritus and inflammatory products to be squeezed out and passed off with the urine. The vesicles may also be dilated but have a pasty feel, or they may be thickened and indurated. The method of treatment is as follows: Internal remedies to neutralize the urine in cases of overacidity; rectal irrigation every night with normal saline solution or strained flaxseed tea at 105° to 120° F., by means of the double-current rectal tube, and massage of the internal organs every five days, followed immediately by a urethral irrigation whenever a chronic urethritis is present. After inflammation has been relieved strychnine and iron may be used or even damiana or phosphorus.

Significance of Uric-Acid Diathesis.—A. C. Croftan (*N. Y. Med. Jour.*, August 11, 1900) maintains that uric acid is not the materies morbi in uric-acid lesions, that it acts pathologically only from its tendency to form concretions. Its formation, far from being a process of self-intox-

ication, is a process of disintoxication and the real materia peccans in uric-acid lesions is the alloxuric bases. He does not believe that uric acid has a primary rôle in the causation of gout, for there are many cases in which concretions do not occur; however violent the inflammations may be, uric acid is never found in the exudate; uric acid is frequently found in the blood in quantities as large as those observed in gout and can be administered to the healthy animal without causing any toxic symptoms. The alloxuric bases are closely allied to uric acid, are readily soluble in the tissues, and are the result of excessive nuclein catabolism and reduced oxygenation. Their chief representatives are xanthin, hypoxanthin, adenin, etc., and they have highly toxic properties. Nuclein when broken down in the presence of sufficient oxygen forms uric acid, but if oxygen is withheld the alloxuric bases are formed in its stead. Thus with normal oxygenation we have formation and excretion of uric acid to the limit of the individual oxygenating powers and alloxuric bases corresponding to the excess of nuclein catabolism beyond the oxidation powers. Therefore this formation of uric acid is a conservative and protective process, occurring probably in the tissues and not in the kidneys. It is an insoluble non-toxic substance incapable of producing the vast array of symptoms usually attributed to it. On the other hand, the soluble alloxuric bases have been found experimentally to cause a train of symptoms similar to those present in cases of uric-acid diathesis. The alloxuric bases so alter the tissues by toxic and inflammatory changes that a field for the deposit of urate concretions is prepared, but these latter are merely secondary to the previous toxic changes. If, then, excessive nuclein catabolism and deficient oxygenation are to be made responsible for the formation of alloxuric bases a rational therapy must be instituted in three directions. (1) An attempt to increase elimination of toxins; (2) a reduction of nuclein catabolism; (3) an increase of the powers of oxygenation. The administration of alkalies has a beneficial effect, not only by neutralizing the excessive formation of acid, but by acting as a diuretic and thus eliminating the toxic materials. Dietary regulations are important. As a rule those foods rich in nuclein are not good, but boiled, stewed and fried meats are permissible and eggs and milk are suitable foods. To raise the oxygenating power of the blood we should increase the hemoglobin of the blood and supply as large a quantity of oxygen in the inspired air as possible. Iron in some form is usually demanded for the first requirement and the use of oxygen gas has been given a thorough trial by the author and found to satisfactorily meet the need for more oxygen in the inspired air. Experiments showed that oxygen inhalation decreased the amount of alloxuric bases in the urine and increased the uric acid. Several cases have been thus satisfactorily treated, but they have not been under observation for more than two years.

Vasectomy.—R. Harrison (*Lancet*, July 14, 1900) says that modern surgery appears to be entering upon a new domain of therapeutics, in so far that now certain operations are undertaken less and less except in the interests of life, because so often extreme physiologic results follow; for instance, the profound systemic effect of oophorectomy, thyroidectomy and double castration, renders these operations necessary only when nothing else can be substituted. In the case of castration, obliteration of the vasa deferentia and seminal vesicles may be substituted, and the author has never seen one bad result follow this comparatively simple procedure. It is true that it prevents more or less completely the sexual functions, but when a patient has once experienced or understood the urinary difficulties of the enlarged prostate, he never hesitates in the writer's experience to sacrifice the sexual for the urinary function. There are three classes of cases in this connection, *viz.*: (1) Those whom double vasectomy benefits permanently and fully; (2) those whom under certain restricted conditions it benefits; (3) those who derive no benefit from it. In the first category belong all those whose prostates are beginning to enlarge, whose bladders as containers and expulsors of urine have suffered no pathological changes and whose use of the catheter for residual urine has just begun. In these patients, as a rule, all the objective and subjective symptoms subside, the gland shrinks much, the cystitis, if present, subsides, frequency and dribbling cease and catheter-life either ended or postponed far into the future. Such are the real cures. As to the second set of patients, certain conditions obtain under which benefit may be temporary or lasting. Here the marked cystitis, vesical dilatation and atony, catheter-life, etc., have all persisted for some time. Hence the gland may slightly or greatly shrink, the cystitis improve, renal disease be avoided, the bladder as a container be made healthy but as an expulsor remain deficient and catheter-life must continue. Similarly the operation may alleviate or cure hemorrhage, spasm or tension after catheterism. In the last category come cases so far advanced that the only benefit may be improvement of the bladder as a container and hence danger of ascending infection avoided. This comes about by sufficient decrease in the enlargement to make catheterism easier. Beyond these three groups, the author claims that as a prophylaxis against recurrence of stone, this operation has great value. All cases may expect some change for the better, although the catheter may not be dispensed with. Similarly after removal of cataracts, spectacles may still be necessary, yet the good done is there. One of the cases enumerated is interesting because, owing to delayed results, a second operation was done and the ligatured ends of a resected vas was found united and the lumen restored. When torsion is done, this can not happen.

Obstruction of the Sigmoid Colon.—Not many years ago, states W. H. Battle (*Lancet*, July 7, 1900), tumors of the lower colon were treated solely by colostomy and no direct effort was made to remove the growth. To-day both procedures are done and often the ablation of the neoplasm has salutary effects. The history is as follows: Man, forty-one years old, admitted March 11, 1900, to the Royal Free Infirmary with intestinal obstruction. A fortnight previously there had been intense general abdominal pain, vomiting and obstruction, March 1st, the bowels opened, but since then only flatus in small amount had passed. March 4th, he went to bed with increasing abdominal pain; medicinal aids failed to relieve; vomiting of coffee-ground matter began on the 6th; no food possible except fluids in small quantity. Defined prostration, emaciation, distension and tympanites were present, but no tumor, no peristalsis; examination, *per rectum* negative. A left inguinal colostomy was done with a well-formed spur formation. The patient did very well, discharging freely through the wound. April 6th, through a median incision a columnar-celled carcinoma of the sigmoid with mesenteric-gland deposits was removed. The ends of the severed bowel were turned in and lateral anastomosis done; complete recovery followed.

Hydatid Cyst in a Native Indian.—This appears to be among the first very few well-established cases of this disease in a native of India who never had left home, and is reported by W. J. Buchanan (*Lancet*, July 7, 1900). A native of Bhagalpur was sent to jail in August, 1896, whence he was removed to the hospital very shortly for fever and right-sided pain. On examination a large abscess-like tumor appeared in the right flank, without fluctuating area. Aspiration yielded a pint of fetid, thin, pus-like fluid. The abscess was then incised, irrigated and drained. Death ensued within a few days with high fever and prostration. At the autopsy the following gross lesions appeared: An enormous abscess cavity, extending from below the free border of the ribs to the vertebral column in the right lobe; a large echinococcus cyst of the diaphragmatic surface of the liver, in size like a baby's head, filled with daughter and granddaughter cysts and fluid. The diagnosis was confirmed by the discovery of booklets in the pathological laboratory of the medical school at Calcutta.

Foreign Body in the Upper Air Passages.—The history of an instructive case is reported by B. Hamilton (*Lancet*, July 14, 1900). A boy, twelve years old, was playing with beans when his arm was suddenly struck and a bean in his fingers was forced suddenly into his mouth and inhaled. Violent spasms of coughing, bloody expectoration and some cyanosis followed, but the bean failed to dislodge. The attacks of coughing ceased and an examina-

tion showed that no air was entering the right lung while the left was acting normally. No trace of the bean could be seen by laryngoscopic examination. All efforts to dislodge the bean failed, thumping of the chest, inversion and emesis. Finally, quiet sleep came on. About twelve hours later a very violent spasm of cough came on, followed by deep cyanosis and unconsciousness. The trachea was quickly opened by an incision which relieved the cyanosis and the loss of consciousness and the bean was coughed out of the wound when it was prolonged downward. The bean was swollen by the moisture and might have caused sudden death by impaction in the trachea or larynx after having increased in size. Because the boy was quietly sleeping the family could not be induced to permit search for it, hence the delay in proper treatment.

Frontal Sinus Empyema.—The importance of diagnosis and proper treatment of this disease, says H. Tilley (*Lancet*, July 14, 1900), simply for the patient's comfort is great, to say nothing of the prevention of complications by an early cure. One important anatomical point must be borne in mind, namely, that, since the anterior ethmoidal cells, the frontonasal duct from the frontal sinuses and the antrum of Highmore all open into the middle meatus of the nose, the symptoms are somewhat alike and the infection may travel from one to the other. Indeed, there is often a mucous membrane fold so related to the openings of the ducts into the sinus and into the antrum as to convert the two into one continuous channel and make the avenue of infection direct between the two. In such cases it is difficult to say whether the antrums or the sinuses were the first diseased, and whether the former is purely a receptacle or the nidus of the pus. The sinuses, it must be remembered, vary greatly in size, laterally along the supraorbital arches, vertically and sagittally into the frontal-bone substance and, finally, downward into the nasal process itself. External body configuration unfortunately is not a guide to the size of these cavities, but after examining one hundred and twenty skulls the author finds that a one-fourth-inch trephine placed midway between the middle line and a vertical let fall to the internal angular process and placed low down near that process will always open into the sinus, whether very small, very large or of usual size. There are three main symptoms of frontal sinus empyema: (1) a thin non-fetid purulent discharge, constant, apparent chiefly in the middle meatus; (2) discomfort, pain, sense of weight or fullness over the forehead; (3) more or less well-marked nasal obstruction due to polypi and granulation tissue of the chronic inflammation encroaching upon the nose. The differential diagnosis is important and must always be made with care, because the operation for the frontal disease disfigures somewhat and must not be undertaken unnecessarily. Since the antrum is much more

commonly affected, all cases may be assumed as springing thence until the contrary is proved. To do this we may resort to transillumination, but better to tapping. This is done with a small trochar and cannula (Lichtwitz's) driven through the nasal wall of the antrum close to the floor just in front of and below the anterior end of the inferior turbinated bone. The ethmoidal cells may next be explored by breaking through their nasal walls, perhaps already egg-shell-like and necrotic by long disease. To determine whether the antrum contains pus as the source or the receptacle is very difficult. In general, the deeper the shadow under the eye in transillumination, the thicker the antral mucosa, which usually goes with long-standing local inflammation. The treatment may be merely irrigation through the nose which rarely does good, because thorough evacuation of the pus is not possible. Breaking into the sinus from the nose is not wise, because the work is in the dark, and meningitis has followed in its path, with death later. The best is the radical opening of the front wall of the sinus with the trephine, curetting away of all thickenings and establishment of a wide canal into the nose from above downward.

Fracture of the Skull.—E. F. L. de Jersey (*Lancet*, July 14, 1900) reports the following very interesting case of brain injury with paralysis, operation and recovery. A forty-five-year-old man, admitted to the hospital February 22, 1900, had been struck on the left side of the head on the 17th inst. with a six-foot pole about six inches in diameter. There were complete unconsciousness, entire right hemiplegia, retention of urine and of feces, temperature 102.2° F., crepitation over the center of the left parietal bone, no wound or discoloration of the scalp, but some pitting on pressure, effusion of blood over the ear, two black eyes from fist-blows and convulsions all over the right side on deep pressure upon the parietal bone. At the operation on February 22d a large skin incision was made from the frontal to the parietal eminence and a large stellate comminuted depressed fracture of the skull was laid bare. The depressed portion was removed and then the meninges and the brain substance beneath were found to be badly lacerated and a large fissure extended forward through the frontal bone and backward into the occipital, across the parietal. There was also a large hematoma which was left alone. At a point four inches from Reid's base line and on the normal to it two inches behind the external auditory meatus, namely, just behind the left parietal boss, was a cavity in the brain large enough to admit the little finger easily. The cavity corresponded to the upper extremity of the left fissure of Rolando and invaded the left ascending frontal and parietal convolution, chiefly the latter. The fracture lay over the whole motor area, which as a whole was more or less damaged as there was entire right hemiplegia of the face and

trunk and limbs and motor aphasia. After the patient regained the use of his tongue, he still had some aphasia left, hearing and comprehending everything, but not being able to answer rightly or quickly at times. The cavity in the brain had degenerating walls and was drained. A piece of bone was replaced and the scalp sutured. Recovery without suppuration followed. Before the operation the pulse was 40, respiration was feeble and inaudible and deep coma was setting in. Six hours after the pulse and respiration had much improved and the patient began to move his right leg. February 23d (the day after the operation) he was so restless as to require restraint, made signs for food and drink and said the word "No" several times. February 24th the right arm could be slightly raised; on the 25th it was freely movable and on the 28th consciousness had almost returned and speech was attempted. March 7th he could put out his tongue, though it deviated much to the right. Five days later he gave an account of his injuries to the police, although the aphasia still troubled him. April 2d he could walk about the ward and on the 10th was discharged cured. The order of the recovery from the paralysis was prominent—lower extremity, upper extremity, face, then tongue, in their order. As to the upper extremity the shoulder, elbow and hand motions came in this series, *i. e.*, the finely-coordinated functions last. Further those movements which the body does simultaneously on each side were least affected and earliest to recover. The upper face almost escaped, regained its action early and long in advance of the lower. The tongue was the last member to recover. The interesting data of the case are retention of urine before the operation, followed by incontinence alternating with it after it; fecal retention before, incontinence, and later constipation after; rapid recovery after the relief of the brain pressure; signs of relief before the shock had gone; comparatively late return of consciousness; absence of ill effects of the cavity in the brain substance; no symptoms from the wide fissures above; and the life of a piece of bone one-half-inch square replaced although almost denuded of periosteum.

Cancerin in Cancer.—A. Adamkiewicz (*The rap. Monatshft.*, July, 1900) had under observation a patient with severe dyspeptic symptoms, constipation and loss of weight, in whom the diagnosis cancer of the greater curve of the stomach admitted of no doubt. Injections of cancerin every second day were at once resorted to. One month later all infiltration, tenderness and dyspeptic symptoms had completely vanished, but the constipation was on the increase and was accompanied by so much disturbance that the patient was obliged to take to his bed. Two weeks later severe hemorrhage with subsequent relief of constipation was noted. The author cites this case to prove in addition to the value of cancerin, the possibility of an inflam-

matory tumefaction of the cancerous deposits before their degeneration and absorption under the influence of the injection.

Chlorides in Pneumonia.—In an extensive research on the elimination of chlorides in the urine and sputum in acute lobar pneumonia Roehrich and Wiki (*Revue médicale*, June 20, 1900) find it of distinct diagnostic and prognostic value. Ten cc. of the mixed urine for twenty-four hours is evaporated with 2 grams of potassium nitrate, calcined, and acidified with nitric acid, and 50 cc. of water added. This is titrated with decinormal silver nitrate in the presence of neutral chromate of potassium. The yellow chromate of silver forms only after complete precipitation of the chlorides. The urine was tested in many febrile and lung conditions other than pneumonia. The chlorides in the urine of pneumonia diminish rapidly during the first day and more slowly for the next day or two, then remain at a very low figure, much lower than in any other fever, until defervescence. At the crisis, the chlorides become very abundant, but if defervescence is by lysis the augmentation is gradual. Any febrile complications, otitis, meningitis, pleurisy, etc., cause elimination. It is probable that the urinary chlorides diminish in direct relation to the extent of the consolidation, and the amount of chlorides, 0.5 to 4 grams a day in lobar pneumonia, serves to distinguish tuberculosis, bronchopneumonia, or sclerotic lung. Usually the chlorides become normal in one to four days after defervescence, and if they fail to rapidly increase the prognosis is bad. As the chlorides diminish in the urine, they constantly increase in the sputum. The amount in the urine is not affected by food or chlorides ingested; it is somewhat influenced by the degree of fever, but it is almost entirely dependent upon the amount of fibrinous exudate. After defervescence the amount of chlorides in the urine is about 20 grams a day.

Igazol in Pulmonary Tuberculosis.—A medical commission appointed to investigate the efficiency of this drug report as follows: (1) Igazol has no bactericidal action upon the bacillus of Koch. (2) It has no action whatever upon the course of the disease. (3) It cannot be considered in any way as a specific for pulmonary tuberculosis. (*Revista Medica de S. Paulo*, June 15, 1900.)

Abscess of the Liver.—O. Fausto (*Revista Medica de S. Paulo*, June 15, 1900) gives a clinical report of three cases of liver abscess. *Case I.*—Man, fifty-four years old; entered the hospital with high fever and intense pain over the hepatic region; four months previous he began to lose appetite and flesh; had intermittent fever, with frequent violent diarrheal attacks, accompanied by blood and mucus; a month later had pain localized over the hepatic region; with this, for the first time, he noticed a swelling in this

region. On examination at the hospital a fluctuating tumor, the size of a cocoanut, was found extending below the free border of the ribs. The treatment was intercostal incision in the axillary line, evacuation of a large quantity of pus, boracic acid irrigation and drainage, daily irrigation of abscess cavity. Improvement followed in all previous symptoms except the diarrhea, which persisted, until checked by intestinal antiseptics. At the end of a month the patient was discharged cured. *Case II.*—Man, thirty-six years old; in ordinary health until two weeks ago, when he had a violent diarrhea with blood and mucus; also a daily temperature and anorexia, but no pain until two days before admission, when pain in the right axillary region, at about the seventh and eighth intercostal space, became so intense that he entered the hospital for treatment. The pain was then so intense in the entire right thorax as to embarrass respiration; dyspnea was marked and the patient's face was anxious. Percussion failed to reveal any increase in liver dulness, nor did palpation show any enlargement; pulmonary auscultation revealed absence of vesicular murmur at the base of the right lung. It was impossible, until an aspirating needle was used, to determine whether a pleurisy with effusion existed. Pleurisy having been excluded, an operation in the mid-axillary line over the seventh intercostal space was instituted, but not until a resection of contiguous ribs had been made was the abscess found, deep seated in the liver; the discharge was copious and fetid. The same treatment as in Case I. resulted in a cure. *Case III.*—Man, thirty-two years old, gave an incomplete history; had had violent bloody diarrhea for some time; no history of liver pain; jaundice was marked; examination revealed large fluctuating tumor extending three inches below the free border of the right ribs; the patient's condition being poor, a preliminary operation was done; after adhesive inflammation was complete about the site of the operation the abscess was incised at the eighth intercostal space. Despite the usual treatment, diarrhea and fever continued unabated, and the patient died in a few days. Autopsy revealed an abscess cavity with many ramifications, involving almost the entire liver; the intestines were anemic, the mucosa being the seat of a fibrinous exudate; scattered throughout the large intestines were numerous ulcers, some superficial, others deep. The mesenteric glands were enlarged.

Benign Pyloric Obstruction.—F. Kammerer (*Annals of Surgery*, July, 1900) considers this condition as either acquired or congenital. There are two congenital varieties, (1) the peritonitic, consisting of a fibrous band representing the pylorus and adjoining duodenum and caused by fetal peritonitis usually of syphilitic origin, and (2) the hypertrophic, commonly ascribed to

a hypertrophy of the circular muscularis and often involving in spasm the pylorus. The former type is usually fatal in a few days. There are in literature four gastro-enterostomies with two successes, and one pyloroplasty, also successful, for the hypertrophic type. Of the acquired stenoses the fibrous obstruction due to chronic ulcer, either by cicatricial contracture or by the formation of infiltration masses is by far the most common. Such infiltrations may simulate cancer and be so diagnosed until a gastro-enterostomy completely cures or a section disproves. Such a tumor in a patient of the author led to a gastro-enterostomy; five weeks later no traces could be found at a laparotomy. Ulcers caused by external violence and corrosive poisons may cause stenosis, but very rarely do. Acquired hypertrophic stenosis certainly exists and is probably caused by chronic catarrhal proliferation and thickening in the muscularis and connective-tissue coats. The pylorus may be, in the second case, obstructed by gall-stones, such a condition being always almost purely mechanical. A gall-bladder loaded with stones may by its size or by falling compress, stenose and block the pylorus. This is proved by absolute cure following evacuation of the stones. Or a peritonitis may accompany the cholecystitis and set up constricting bands. Fixation of a gall-bladder to the duodenum by inflammatory deposit may be followed by ulceration of the stones into the intestine, where by their size they block or by their irritation cause spasm and hypertrophy or ulcers and cicatricial contraction. Tertiary syphilis, especially gummata, may by situation along the lesser curvature or at the pylorus cause mechanical stoppage or, after breaking down, ulcerate, cicatrize, contract and stenose in that way. Benign tumors may obstruct, are frequently stated as causes of this condition, but in literature few instances are established. They are apt to be non-obstructing and may consist of adenomata, polypi, myomata, cysts, etc. Spasm of the pylorus may be permanent or temporary, is usually associated with hyperchlorhydria, decomposition and stasis of the stomach-contents. Permanent spasm may lead to pyloritis and genuine fibrous stenosis. Selection of surgical treatment rests between dilatation of the stricture, resection of the pylorus, divulsion of the pylorus, pyloroplasty and gastro-enterostomy.

Gastric and Intestinal Cancer.—B. F. Curtis (*Med. Rec.*, August 4, 1900) says the diagnosis of this condition rests on a number of factors. Constipation, either chronic in character or alternating with diarrhea, may be the chief symptoms; or a diarrhea of the muco-purulent type with no tendency to constipation may be the sole sign. Attacks of intestinal colic frequently recurrent, with or without subacute intestinal obstruction, form another definite clinical picture. As the case progresses these attacks come oftener and become more intense until almost

complete obstruction occurs, which finally yields to medical treatment. Blood, mucus, and pus in the stools, and occasionally ribbon- or pill-form feces are present, though many other conditions give rise to them. A bimanual rectal and vaginal examination must never be omitted. The significance of these symptoms is greater in the presence of age, emaciation, cachexia, vague indigestion, etc. Sometimes the tumor will be apparent before symptoms begin. Any patient presenting the above conditions must be subjected to repeated examinations in order that it may be determined when to operate. As to the situation of a tumor, exploration is always wise, when other means fail.

Enlarged Spleen with Cirrhosis of the Liver.—Cardarelli (*La Reforma Medica*, May 18, 1900) gives the history of a case not usually seen, that of a man, thirty-three years old, without any antecedent hereditary or personal history, bearing upon the illness which began with severe pain under the border of the left ribs; soon gastric disturbances began, followed by increased distention of the abdomen and scarcity of urine; physical examination showed an enlarged spleen, with a liver, reduced in size. Blood examination showed profound anemia. There was no edema of the extremities but the abdomen was greatly distended. The precedence of splenic hypertrophy with anemia without any exciting cause and the subsequent progressive atrophic cirrhosis, Cardarelli considers unusual, inasmuch as a like condition has been observed in but few cases in adults. A splenectomy was done, resulting in a subsidence of all acute symptoms and the arrest of the atrophic cirrhosis process.

Epithelioma of Pelvis of Kidney.—In reporting a case of this rare condition, A. O. J. Kelly (*Proc. Path. Soc. of Phila.*, July, 1900) states that nineteen cases have been recorded, all except two being over fifty years of age. There is scarcely a mucous membrane in the body so seldom the seat of tumors, as that of the renal pelvis and ureter. Those which are histologically papillomata seem to have marked malignant tendencies not found elsewhere, and recurrence after removal has necessitated extirpation of the kidney. The growth is large and villous and may be very extensive, even involving parts of the whole ureter and bladder as well as the renal pelvis. In several cases renal calculi were found, and it seems probable that these were causative factors in the production of the neoplasm, as are gall-stones in the production of carcinoma of the gall-bladder. The lesions are multiple, not spreading by continuity or contiguity, but appearing in patches in the urinary tract.

Hip Amputation.—T. F. Chavasse (*Lancet*, July 21, 1900) reports fifteen hip amputations on fourteen patients with four deaths. On one of the patients two amputations for tuberculosis were done, with a long interval between. Re-

covery followed and life was prolonged for a considerable time. The methods of choice for doing the operation he considers, first, the anterior and posterior flap; second, the external racquet (Fourneauux Jordan), and, third, the "gradual dissection" method. The last method is applicable in emergencies when few assistants are at hand. The femoral vessels are first ligated doubly and divided and all others as encountered. The anterior and posterior skin-flap are made from without inward and then all the soft parts are divided by dissection up to the pelvis. The means of controlling hemorrhage are, first and best, Wyeth's pins or, in children, ordinary iron skewers; second, aortic compression, carried out best in children with a pin-cushion over the aorta and a broad rubber tourniquet about the body. It has the disadvantage of hindering respiration and at times compressing the intestines too much. The third procedure is digital pressure on the femoral vessels as they cross the pubic bone by a skilled assistant. Shock is a very important element and is best combated by saline infusion just at the end of the operation.

Syphilis of the Eye.—No constitutional disease manifests itself so frequently by producing eye-symptoms as does syphilis, says P. T. Vaughan (*N. Y. Medical Journ.*, July 28, 1900), and in nearly half the cases the affection is of the iris, ciliary body, and choroid. The iritis may be plastic, serous, papular, or gummatous, and even when there are no visible condylomata, papules, or gummata on the iris, antisyphilitic treatment will meet with response. Sometimes gonorrheal or other infection of the eye may be coincident with syphilis, but in no degree dependent upon it. In plastic and serous iritis, the symptoms are pain, usually worse at night and aggravated by bright light, and impaired vision depending upon the degree of involvement of the ciliary body. The cornea may remain transparent in the rare cases of iritis without inflammation of the ciliary body; otherwise it is coated with exudate. The pupil is contracted and sluggish owing to congestion, exudation, and the attachment of the iris to the lens-capsule. There may be pericorneal injection. In syphilitic cyclitis we get in addition to the iris symptoms, precipitates in the vitreous, exudations between iris and lens-capsule, ciliary injection, and turbid aqueous humor. Hypopyon may be present. Cyclitis usually results in loss of vision. Syphilitic choroiditis is exudative and may be disseminated, central, or accompanied by retinitis. In the disseminated variety there is haziness of the vitreous, and circumscribed pinkish-yellow exudations in the choroidal tissue. In the central variety there is always an exudate in the region of the macula. In chorioretinitis the borders of the optic nerve are indistinct, the optic disk is hyperemic, and choroidal changes exist. Scotomata are frequent, and flashes of light with impairment of vision as the disease progresses, toward the macula.

Rapid Diagnosis of Rabies.—From a study of three dogs and three rabbits experimentally inoculated by subdural injections, M. P. Ravenel and D. J. McCarthy (*Proc. Path. Soc. of Phila.*, July, 1900) report favorably on the early diagnosis of rabies by microscopic examination of the cord. The changes in the cells are a diffuse chromatolysis affecting all the cells, followed by a retraction of the cells from the capsules and a proliferation of the cells of the capsule. These press on the degenerating ganglion-cell, destroy it, and fill up the space occupied by it. The chromatolytic changes are best seen by Nissl's stain and the capsular changes by hematoxylin-eosin.

Eyeglass Habit.—Few people need to wear spectacles out-of-doors, writes N. B. Jenkins (*N. Y. Med. Jour.*, July 28, 1900), and by wearing them they induce weakness of the focusing muscles, so that the spectacles become a necessary evil. The easiest way to tell the need of glasses is to hold fine print sixteen inches away, look at it with both eyes, then with each eye separately. If the print seems the same in each case, and if ordinary reading for several hours a day causes no discomfort, the sight is normal. Some people, having been fitted with glasses, think they see perfectly, but use only one eye, and unconsciously suppress the retinal image of the other, which becomes amblyopic from lack of use. About one old person in four uses one eye in reading because of wrong glasses, for but little care is used in fitting old people. If after wearing glasses only a few days the print looks worse to the naked eyes than before the glasses do not fit. The best rule for the good of the eyes is, "Wear glasses as little as possible."

Hypospadias.—F. C. Valentine (*Med. Rec.*, July 28, 1900) reports a case of penile imperfection treated successfully by the method of Carl Beck, based upon the great distensibility of the normal urethra. The physical conditions were a sulcus in the ventral aspect of the glans penis representing the sides and roof of the fossa navicularis urethræ; several minute urinary fistulæ in the glans nearby, and the opening of the defective urethra about half an inch posterior to the sulcus. The steps of the operation are dissection of two lateral flaps from the ventral aspect of the corpus spongiosum and corpora cavernosa as far as the proximal third of the organ, outlined by a straight median incision through the skin and a circular incision at right angles to this just behind the sulcus of the corona. The exposed urethra is then dissected out of its bed with its corpus spongiosum for the length of that incision. The glans is perforated anteroposteriorly just dorsal to the defective fossa navicularis and the freed urethra and corpus spongiosum are drawn through this new bed and secured by stitches and the flaps replaced. Healing was prompt. An erection caused a tearing out of one of the meatus stitches, but this was easily replaced. A slight

temporary incurvation followed, but after a short time normal coitus could be performed.

General Arteriosclerosis.—As an early definite and reliable sign of general arteriosclerosis, *La Semaine Médicale*, July 4, 1900, sets forth the practical early diagnostic point of accentuation of the aortic second sound heard best over the angle of the left scapula. Although in this disease various widespread signs may be present and especially the time-honored emphasis of the aortic second sound heard at its maximum over the true aortic area, yet such is not always the case, more particularly in the early onset when diagnosis is of more importance. Since any condition determining hypertension in the arteries, such as overactivity of the heart, may give the same aortic sign, an element of doubt is present in the early stages. Some authors claim that general arteriosclerosis differs from these many other states in having the increment in the sound also audible in the carotids and the supraclavicular regions. What has been pointed out by F. Friedmann of Vienna appears as a still better sign, namely, positive increment in the aortic diastolic tone at the level of the angle of the left scapula and in a line joining it with the seventh dorsal vertebral spine. Examination for it is best made while the arms are crossed over the chest and the hands placed each on the opposite shoulder to widen the interscapular space and while respiration is stopped during full expiration. This sign is of greatest diagnostic importance in patients young in years and early in the disease. As age advances the level of auscultation appears to descend and finally disappears even in the presence of absolute general signs of the disease.

Blood and Urine of Tubercular Subjects.—E. Maragliano (*Gazette degli Ospedali e delle Cliniche*, June 24, 1900) believes that in the phenomena of tuberculosis there is an intoxication manifest which it would be impossible to attribute to the local morbid process, and which must be attributed to the intoxication of the organism by the products of tubercle bacilli. Starting with this as a working hypothesis he instituted a series of experiments as to the toxicity of the blood and urine of tubercular subjects. White mice were injected with the blood of tubercular subjects whose tuberculosis was not well advanced, others with the blood of subjects with marked tubercular symptoms, and others with a glycerin extract of the serum of tubercular subjects. A specially-precipitated prepared extract of the urine of tubercular subjects was also experimented with. From these researches he concludes (1) that the fresh blood and the glycerin extract of serum of the blood of tubercular subjects and the precipitated prepared extract of the urine all exert a toxic action on the animals experimented upon; (2) that the toxic action manifests itself with all the phenomena of tuberculosis, and (3) that the toxic action may be neutralized by tubercular antitoxin.

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OF MEDICAL SCIENCE.

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J. RIDDLE GOFFE, Ph.M., M.D., Editor,
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE	\$4 00
SINGLE COPIES	10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM	7 50

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK,
AND NOS. 706, 708, & 710 SANSON ST., PHILADELPHIA.

SATURDAY, AUGUST 18, 1900.

TO LIMIT DISPENSARY ABUSE.

FROM present indications, as seen by those who are connected with public dispensaries, the act passed by the New York Legislature to prevent the abuse of the privileges offered by dispensaries has as yet produced no marked results. Men and women still go to the dispensaries, demand free treatment, and unblushingly deny their ability to pay even a small fee while admitting an income perhaps of from \$8 to \$25 per week! Policemen, letter-carriers, street-railway employes, all in uniform, come and demand free treatment, as well as the well-dressed woman who is seen to remove a handful of diamond rings from her fingers while sitting in the outside waiting-room. The police, letter-carriers, and street-railway employes have all their own society or corporation physicians, but as would-be patients at a dispensary they "don't like the company doctor."

There is no diminution in the number of applicants for medical charity, nor is there apt to be as long as any dispensary has to show a large number of non-paying patients treated as a reason for its existence or in order to secure its share of public charity funds. The real harm done by free institutions is not that a few mendacious,

mean, well-to-do impostors get free treatment, but that the whole wage-earning class of the community is gradually being taught that medical attendance is something they should receive for nothing and that there is no cause for shame when they pauperize themselves by begging for it.

There lies before us as we write a circular letter, entitled "A Practical, Effective and Humane Method for Limiting Dispensary Abuse." The writer gives his experience in what he calls a new method of meeting the dispensary evil and asks the cooperation of such physicians as approve of his method in extending the work. For two years the writer of this letter conducted in New York City a free eye dispensary at an annual expense to himself of \$2000. During the last year of that time 1715 patients applied for free treatment. About 10 per cent. of this number were proper dispensary patients. About 3 per cent. were refused treatment as they were plainly people who should have been ashamed to ask for it. The remaining 87 per cent. consisted of wage-earners whose average income was from \$8 to \$25 per week. They were mechanics of all sorts, book-keepers, stenographers, domestics, dress-makers, city employes, letter-carriers, clerks, salesmen, widows and unmarried women living on small but sufficient incomes. The 10 per cent. pauper element of the patients was probably benefited by this charity. The 87 per cent. of the patients, who were neither paupers nor millionaires, surely had their independence and self-respect undermined by the alms-receiving, and received more damage than if they had paid a moderate fee, even if it necessitated some self-sacrifice and economy. The writer feels sure that this class of people dislike *at first* to go to a charitable institution and would prefer to pay a moderate fee if they knew where such a fee would be charged.

At the end of two years the free dispensary was discontinued and an eye, ear, nose and throat "sanatorium" opened in its place. A conspicuous sign was placed at the entrance stating that the sanatorium was a *non-charitable* institution and that a reasonable and moderate charge would be made for examination and treatment. The writer states that during the year 1555 eye patients alone received treatment there and paid a reasonable and moderate fee. These patients were of the same class as those who formerly made up the majority (the 87 per cent.) and in many cases were the same individuals, and they gladly paid from fifty cents to two dollars for ex-

amination and one to five dollars per week for treatment. These patients paid the writer nearly \$3500 during the year, which he considers better for him and also for them than free treatment. The greatest gain he thinks consists in the fact that over 1500 patients, all of whom would have degenerated into dispensary paupers, are still untainted by alms-receiving. The above figures do not include patients of that class who require no special consideration as regards the fees charged.

The writer believes his experience proves that the wage-earners who are now being treated free at nearly all the larger hospitals and dispensaries would gladly pay fees if there were places where they could go and pay according to their income without too great a sacrifice. As a remedy for the dispensary evil he suggests that such places be established where this class of people can go and pay what they can, and that such payment be insisted upon. Sanatoria for the rich are many and it is not considered unethical for them to let their existence be known, therefore the writer concludes that it can be no more unethical for sanatoria where the prices are adapted to the incomes of nine-tenths of the population to let themselves be known.

The experience of this physician seems to show that a majority of the wage-earners who apply for free treatment at dispensaries would be willing to pay a small fee. If this is so and places were established where treatment could be obtained for low fees, it might lessen the number of new patients of this class at free dispensaries, but would it diminish the attendance of the many thousands who have been for a long time, and are still, receiving free treatment? There are many physicians now giving their services for nothing in free dispensaries who surely would be glad of an income of \$3500, even if made up of fees ranging from fifty cents to \$2. We know nothing of this physician who thus obtains an income of \$3500 from people who would otherwise be free dispensary patients, but the scheme is a good business proposition and saves many from the demoralizing effect of alms-receiving.

LAWS GOVERNING THE EXPENDITURE OF NERVOUS ENERGY.

So much rests upon an exact knowledge of the laws underlying fatigue and invigoration of nervous matter that investigations for determining the same are very important. The inherent difficulty in determining definitely the amount of fatigue produced in nervous tissue by different

causes is considerably more than in other tissues. This information can be obtained best in experimenting upon isolated nerves, by the electrical method, using the galvanometer as an index. Such experiments conducted upon nerves specially treated by drug preparations were first carried out by Waller in 1896, and in a recent résumé before the London Neurological Society (*Brain*, 1900) upon the excitability of nervous matter, this author has given us some very instructive data upon the exhaustibility of medullated and non-medullated nerve-fiber. In consequence of non-medullated grey matter being without a nutrient sheath it is rapidly exhausted, while on the other hand, nervous matter of the same composition, but protected with a medullated sheath, is rapidly reinvigorated by its white envelope; such nerves and their sheaths are found to act and react upon one another for support and nutrition. Waller holds that the waste matter of the one is raw material for the other and that they exist as a striking illustration of complementary nutrition. As a proof of the nutrient power of medullated nerve-sheath, the first stage of the well-known change of Wallerian degeneration can be cited in which the primary destruction in the nerve-fiber after separation from its cell occurs in the nerve-sheath. Waller studied the laws governing the exhaustion and restitution in nerve-tissue under the action of veratrine and protoveratrine, two alkaloidal constituents of green and white hellebore respectively. Curiously enough, although these two drugs are closely allied chemically, the one, veratrine, acts upon muscle and the other, protoveratrine, has its action upon the nerve; their respective actions upon these two tissues are similar. Protoveratrinized medullated nerve under stimulation undergoes exhaustion rapidly, as the power of restitution is then stopped by the drug.

By means of electrical experimentation upon the retina, Waller establishes the ratio between physical stimulation and physiopsychologic effect. This cause-effect curve from stimulation is sigmoid in form; that is, the effect from stimulation is at first slight, then increases rapidly, then slowly once more, and finally ceases altogether. A practical application of this is seen in normal physiologic psychology. The student learns the primary facts about a new subject very slowly at first and with great difficulty, then, as he gains momentum, he accumulates knowledge more rapidly, then progress begins to slacken and finally ceases almost entirely as ultimate per-

fection is reached. It is well known that the last steps in the passage from the realms of mediocrity to more or less perfect attainment are the costly ones, therefore the most expensive efforts in the performance of a task from the standpoint of energy, are its beginning and its ending.

We infer from Waller's experiments that the special exhaustible points of the neuromuscular chain are its non-medullated portions, the cerebral and spinal cells and the motorial end plates. Therefore, to correct or to prevent the ill effects of physiologic and psychologic nerve-exhaustion, we must of necessity direct our attention toward strengthening these vulnerable points.

ECHOES AND NEWS.

NEW YORK.

Contagious Diseases.—For the week ending August 11, 1900: Measles, 55 cases and 5 deaths; diphtheria, 177 cases and 27 deaths; laryngeal diphtheria (croup), 2 deaths; scarlet fever, 48 cases and 3 deaths; smallpox, 1 case and 1 death; chicken-pox, 3 cases; tuberculosis, 166 cases and 161 deaths; typhoid fever, 60 cases and 16 deaths; cerebrospinal meningitis, 9 deaths. Totals, 510 cases, 224 deaths.

Bequest to Hospital.—The Geneva City Hospital, of Geneva, N. Y., will receive \$10,000 by the will of Judge Francis O. Mason. Upon the death of two sisters of the deceased it will receive \$80,000 additional.

New Infant-Asylum Building.—The Board of Managers of the New York Infant Asylum have filed plans for a four-story brick asylum building, estimated to cost \$100,000, to be erected on a plot 100 x 56, on the northeast corner of Amsterdam Avenue and Sixty-first Street. The building will be constructed with a view to adding three stories in the near future.

The Elmira Reformatory.—Sensational stories are afloat that Acting Superintendent Robertson and Assistant Superintendent McDonnell have resumed the punishment of prisoners in a form more severe than that which obtained under the Brockway régime. Acting Superintendent Robertson says that it is true that some of the incorrigibles have been punished, and that all prisoners who refused to obey the rules of the institution would be properly taken care of in this direction by the management. He said that those who had refused to work or drill had been "stood up" and handcuffed to the doors of their cells facing the interior, hands behind the body. This method of punishment, Dr. Robertson said, was adopted three days after he had been appointed Acting Superintendent, and had been found very satisfactory. The report that paddling had been resumed, he said, was without foundation.

PHILADELPHIA.

Increase in Typhoid Fever.—Residents in the northwestern section of the city are becoming concerned over the increase of typhoid fever. The various hospitals have more than their usual quota of fever patients and physicians note the increase in private practice. The cause is as yet a matter of conjecture.

Accidents to Ambulances.—The Germantown Hospital ambulance and that of St. Joseph's Hospital were both partially wrecked August 9th. The former collided with a trolley car and the latter ran into an excavation. Fortunately the physician, driver, and patient in each instance were but slightly injured by the accident.

Christian Scientists.—Judge Pennypacker has refused to grant a charter for a church of Christian Scientists. The reason given for the refusal was that the law of the State to protect the public from illicit medical practice must be upheld. The *Times* says: "What we want as a next step is a court that will deal with Christian Science 'healers' in the same spirit."

Conjunctivitis.—The catarrhal form of this disease is prevalent in the city and is rapidly spreading. The fine dust from asphalt pavements is said to be the cause. Just why this should give rise to what threatens to be an epidemic at this time is not clear.

Health Report.—Deaths in the city for the week ending August 11th were 452, an increase of 13 over those of the previous week and an increase of 7 over the corresponding week of last year. There were 2 deaths from cerebrospinal meningitis, 47 from cholera infantum, and 3 from sunstroke. There were 131 deaths under one year of age and 23 over 80 years. Deaths from contagious diseases: Diphtheria, 7; typhoid fever, 2.

CHICAGO.

Public Health Notes.—In the last week of July, for the first time in any week since that which ended December 28, 1898, there were no deaths from scarlet fever reported to the Bureau of Vital Statistics. In the intervening period of 83 weeks there were 712 deaths from a disease which had been so steadily diminishing for fifteen years that, as was said in the March, 1899, monthly bulletin, "seemed as though scarlet fever were fast losing its evil significance for the sanitarium and health authorities." In the same connection it was also said that "the virulence of the present type and its increasing mortality portend an extension of the disease to epidemic proportions." This apprehension of the department has, happily, been only partly realized.

Great Infant Mortality.—The terrible infant mortality of summer is due more largely to uncleanness in the house and its surroundings than to any other one cause, and parents or heads of households have direct and important duties

in this respect. Wholesome food for the young cannot be furnished from an unclean, sour-smelling kitchen. Healthful sleep cannot be had in a foul, unventilated bedroom. Parents should therefore keep their houses clean, especially the kitchens and the sleeping-rooms.

Mortality Report.—The mortality for the week ending August 4th was 484, compared with 438 of last week, and 465 for the week ended August 5, 1899. Acute intestinal diseases head the list with 136 deaths. This increase is due probably to high temperature rather than to impure water, as is shown by the increased number of deaths of infants. Consumption carried off 42, but usually heads the list in winter; next come heart and nervous diseases, each with 32 deaths; pneumonia, 19; sunstroke, 2.

Medical Colleges and Universities.—Dr. I. N. Danforth, of this city, in an interesting article on this subject in the August issue of the *Medical Standard*, says that the medical schools of Chicago have conferred quite as much credit and honor upon the universities with which they are connected as they have received from them.

GENERAL.

Losses and Sickness in the Philippines.—The losses of our troops in the Philippines since August 6, 1898, are as follows: Killed, 587; died of wounds and accidents, 353; died of disease, 1539; total deaths, 2479; total wounded, 2315; grand total, 4794. The following is General MacArthur's official report of the ill in his entire army on July 31st: Ill in hospitals, 3755; ill in quarters, 1081; percentage, 8.04.

Mrs. Eddy and Eddyism.—Impelled by the curious and unique necessity which compels the self-styled "Christian Scientists" to make constant denials that their high priestess is either dead or dying, they have just persuaded—"persuaded" is a good, safe word—the *Boston Globe* to publish a long article in which Mrs. Eddy is described as trotting agilely from room to room and from floor to floor in her Concord home, and is quoted as assuring the interviewer that her health is as perfect as her philosophy—price by mail, \$3.18.—*N. Y. Times*.

Obituary.—Dr. Carl M. Kelley, Coroner of Pike county, Pa., fell dead at his home, in Matamoras, August 11th, from heart disease. He was born in Scranton, Pa., thirty-eight years ago, and was graduated from the College of Physicians and Surgeons at Baltimore in 1883. He practised in Scranton, then New York, and settled in Matamoras two years ago. His father was Dr. Thomas Kelley, of Scranton, and both of his grandfathers were physicians. He had five brothers in the medical profession, two of whom are living. A widow and one son survive him.

The Plague.—The four cases that were recently reported in London were efficiently handled, two died and two are still in hospital at the mouth of the Thames. The case at Hamburg occurred in

a sailor from South America and therefore was free from any suspicion of invasion from the East whence immigrants to America embarking at that port come.

The "Solace" Sails.—The "Solace," bringing home the sick and wounded from China, sailed August 13th from Yokohama for Guam, which will be her first stopping place on her homeward trip.

The London College of Physicians.—A lively correspondence has been going on in the columns of the *Medical Press and Circular* as to whether fellowship is bestowed by this corporation *honoris causa* or as a matter of favoritism. The *Press* evidently holds to the latter view and in a recent editorial says: "The truth of the matter is that the constitution of the Royal College of Physicians of London is a survival of traditions that can be no longer tolerated in a democratic age. The days of close corporations are numbered, and this ancient College would do well to bow to the inevitable, and anticipate the reforms that must sooner or later overtake all irresponsible government of the kind."

Home for Soldiers at Manila.—Encouraged by the wife of Governor Stanley and other ladies of Kansas, a proposition has been made to establish at Manila a home for the soldiers of the United States, somewhat after the fashion of the Christian associations and similar efforts in this country to counteract degenerating influences, the home to be called the Clara Barton Home, and to be established under the sponsorship of the National Red Cross Society, though it is also proposed not to involve that society financially, but to obtain contributions for the support of the home from those States from which have been recruited volunteer regiments now in the Philippines.

The British Medical Association.—The new constitution which the Council had prepared, and which many believed it had intended to railroad through at the general meeting, met with a cold reception. Instead of being promptly adopted as the Council had expected, it was referred to a committee of twenty-four to consider and report upon the best means of reorganizing the constitution of the Association, twelve members being nominated by the Council and twelve by the general meeting—the whole twenty-four members being eventually elected by the members assembled in general meeting. It has been decided to hold the next annual meeting of the Association at Cheltenham, and Dr. G. B. Ferguson has been appointed President-elect.

An Obstetrical Fraud.—A French contemporary relates an instructive story of a young physician who was visited by a woman presenting the external signs of pregnancy. She engaged him for the approaching confinement and left. A few months later the physician was summoned to his patient, only to find the infant not only born, but washed and dressed. He was gently chided

for his slowness in responding to the summons, and was requested as a particular favor to call at the registration office for the purpose of registering the birth. Anxious to reestablish himself in the good graces of his patient, the physician did as requested, leaving the house without examining either mother or child. We may judge of his surprise and dismay when, some time after, he was prosecuted by the State for aiding and abetting in a fraud by having made a false declaration as to the birth of a child. It turned out that his patient had not been pregnant and consequently had not borne a child; but had presented her physician with a supposititious one and made him a guileless partner in her attempt to fraudulently acquire some property. Fortunately for the young man, M. Brouardel interested himself in his case and the prosecution was dropped; but the fraud is one against which, in its protean form, the young and inexperienced practitioner requires to be put on his guard.—*Press and Circular*.

The Hospital Break-down in South Africa.—The *Practitioner*, in commenting on the unfortunate epidemic of typhoid and its disastrous consequences in the British Army, ascribes the responsibility to the quartermaster's department—the department that was responsible for the shortcomings in the Spanish-American war. Hints are also thrown out that the havoc wrought by typhoid, which is preventable, may be attributed to the convenient scapegoat "continued fever." "It has been hinted that the typhoid mortality in Lord Roberts' force would by and by be diluted with 'continued fever.' Curiously enough it appears from a paragraph under the above heading which appears in the *Homeopathic World* of July 2d, that the all-conquering field-marshal is a devotee of homeopathy. As such 'Bobs' may be assumed to be a believer in the potent effect of infinitesimal dilution. My Hahnemannian contemporary adds that many of Lord Roberts' staff are to its knowledge homeopaths like himself. We may therefore expect the dilution to be carried out with the highest skill."

An Asiatic Woman an M.D.—The first Eastern woman admitted to the Licenses of the Royal College of Physicians and Surgeons, Ireland, received her diplomas last week. The lady is a Parsee named Miss Aunnie M. Treasurywala, and she appeared at the capping ceremonial in the full costume of her caste. It is said that she made a most brilliant examination for her final, having been the only candidate who passed with honors.

London Organizes a Pediatric Society.—The Society for the Study of Disease in Children was formally incorporated at a meeting held on July 24th at the house of the Royal Medical and Chirurgical Society. Dr. Arthur E. Sansom was in the chair and there was a fair attendance of those interested in the movement. The officers and council of the new society are as follows:

Hon. Treasurer, Mr. Clement Lucas. Council: Mr. H. G. Armstrong (Wellington College), Dr. Henry Ashby (Manchester), Dr. Fletcher Beach, Dr. George Carpenter, Dr. Edmund Cautley, Dr. Wayland C. Chaffey (Brighton), Dr. Arthur Downes (Local Government Board), Mr. Walter Edmunds, Dr. Theodor Fisher (Bristol), Dr. Leonard Guthrie, Mr. Robert Jones (Liverpool), Dr. David B. Lees, Dr. Lewis Marshall (Nottingham), Dr. John McCaw (Belfast), Mr. D'Arcy Power, Dr. Humphry D. Rolleston, Dr. A. E. Sansom, Dr. George E. Shuttleworth (Richmond), Mr. Harold J. Stiles (Edinburgh), Dr. George A. Sutherland, Dr. James Taylor, Mr. Alfred H. Tubby, Mr. William H. Vickery (Newcastle-on-Tyne), Dr. Dawson Williams. Honorary Secretaries: Mr. Sydney Stephenson (London), and Dr. Charles H. Willey (Provincial). The new society already numbers upwards of eighty original members.

CORRESPONDENCE.

A FATAL CASE OF "IDIOPATHIC TETANUS."

To the Editor of the MEDICAL NEWS:

DEAR SIR:—Will you permit me to put on record in your valuable journal the notes of the following case: The patient, Alois M., a Bohemian, age fifty-three years, had suffered June 25th until the 28th of this year from quite a severe attack of intermittent malaria; began feeling better and went to work in the hot sun when yet weak from his attack. July 3d he worked in a hot cornfield, getting wet in a shower of rain, and this same exposure was repeated during the forenoon of July 4th, yet he ate a good dinner on that day. At 5 P. M. I was called and found his neck perfectly stiff, jaws set very tight, no temperature, pulse 80; while I was there he broke out into a profuse perspiration; he was then unable to swallow any medicine. A hypodermic of morphine and chloral and bromide, given later, did not relax the spasm of the muscles. The patient died July 5th at 3 A. M. from asphyxia. I did not make a second visit and there is no record as to whether the temperature rose later. The patient had received no wound or scratch of late.

F. H. NEUHAUS, M.D.

Schulenburg, Texas, July 31, 1900.

TRANSACTIONS OF FOREIGN SOCIETIES.

British.

BACTERIOLOGY OF TROPICAL DYSENTERY—OF YELLOW FEVER—OF DIPHTHERIA—THE MOSQUITO AND MALARIA—ANURIA SECONDARY TO CYSTITIS—PORRO-CAESAREAN HYSTERECTOMY—OPTIC NERVE TUMOR.

W. OSLER presided at the meeting of June 30th of the London Pathological Society and S. A. Flexner (Philadelphia) made the following points as to the bacteriology of dysentery and yellow fever. There are the acute and the chron-

ic forms. The acute type may be fatal in forty-eight to seventy-two hours, or end in complete recovery, or go on to the chronic disease. The chronic dysenteries of the tropics are *per se* amebic, while the acute is due to a bacillus differing from the common intestinal flora, agglutinating with the serum of dysenteric cases, resembling somewhat in action, but differing in biological and physiological properties from the bacillus typhosus, but apparently identical with the organism isolated from dysenteric cases at Manila and in Porto Rico and with that found by Shiga in the form of disease endemic in Japan. As to the yellow-fever bacillus he said that the widespread fatty and hyalin degenerations are not peculiar to this germ but may be caused by others.

L. COBBETT (Cambridge) showed cultures identified with certainty as the bacillus diphtheriae taken from a pony which had suffered from a sero-purulent, sanguineous nasal discharge and probably been the source of infection of a girl-patient whose father owned the animal. The diphtheritic toxin is also excreted in the urine, as Dr. Cobbett showed in experiments with susceptible animals. The urine was injected beneath the skin and a variety of toxic effects or death followed. Control experiments with urine from the same normal animals or from diphtheritic animals after mixing with antitoxin proved the proposition.

H. F. NUTTALL (Cambridge) gave a demonstration of the relation of the mosquito to malaria, consisting in an exhibition of the developmental stages of the avian and human species in the *Culex* and *Anopheles* respectively, and of specimens, photomicrographs and drawings. Living specimens of the *Anopheles* and *Culex* caught near Cambridge were shown in tanks, and their biology discussed. Maps of the distribution of malaria now over the world and formerly over England and of that of the genus *Anopheles*, so far as known, were shown, with the remarkable agreement between them. Development of the human parasite in the *Anopheles* had in nine species succeeded (India, Africa, Italy and the United States), while in ten of the *Culex* it had failed (Italy, Africa and India). Possibly a variety will be found to do it. The absence of malaria and the presence of the *Anopheles* in England are still to be explained definitely, but possibly on the ground that the mosquitoes are relatively few. It appears that great numbers are needed.

At the meeting of the Edinburgh Obstetrical Society, June 27th, L. LACKIE reported a case of non-obstructive urinary suppression following cystitis. Eight years ago the patient had chronic cystitis, which did not yield to irrigation, medicinal, or dietetic treatment. The urethra was divulsed for exploration, but never regained its function although the symptoms were abated and a rubber urinal made the patient easy. In March, 1900, he was called in to treat her for vomiting and anuria. Hot packs and diuretics stimulated

a free flow for eight days. Then without symptoms of uremia the patient died. At the autopsy were found an atrophic tube-like bladder, a right acute septic nephritis and a left degenerated caseated tuberculous kidney.

N. T. BREWIS read notes on a Cæsarean section followed by a subperitoneal hysterectomy. The patient had a contracted pelvis with a true conjugate of two and one-half to two and three-quarter inches; one pregnancy had ended in stillbirth by forcible use of the forceps; two had terminated by early abortion; a fourth by basilysis at term, and the fifth as above because subsequent conception had to be guarded against. The other operations which might have been considered were symphysiotomy, Saenger's Cæsarean section, Porro-Cæsarean operation, Cæsarean operation followed by panhysterectomy or by subperitoneal hysterectomy. He had done two Porro-Cæsarean sections and four panhysterectomies, all successfully, and considered the latter as easy and less risky than the former, so far as hemorrhage and sepsis go, although less rapidly done. He decided against improved Cæsarean section because of the dangers of a gaping uterine wound, hemorrhage and peritonitis, and of the conditions analogous to the normal puerperium. There was little to decide between panhysterectomy and subperitoneal hysterectomy. Having had experience with the latter in fibroids he chose that. A living child and mother resulted. The same author read a few remarks on irrigation in laparotomy and stated that when necessary the vagina should be opened in the posterior fornix to permit exit of the washings and drainage of the pelvis.

J. W. BALLANTYNE gave the clinical report of a case of eclampsia, treated with veratrum viride and saline infusion. After a normal pregnancy and childbirth, at the sixth month of her second, for a month previous to the eclampsia the patient had noticed swelling of the feet and during a week previously great paleness of her urine. The onset was preceded by great epigastric distress and violent headache. The fits were controlled by chloroform and enemata of chloral hydrate with potassium bromide and hypodermatic injections of veratrum viride. One and one-half pints of saline infusion were injected beneath the breasts, several ounces of urine were soon drawn off containing two-thirds albumin, much blood and many epithelial tube casts. The urine before the fit had contained two-thirds albumin but nothing microscopic. Abortion was at once induced, labor taking place normally without any more fits, of which there had been a total of eighteen. The child was alive, hence death of the fetus could not be invoked as a cause of the eclampsia. Rapid and complete recovery followed. In a week the urine had a trace of albumin; in sixteen days there was none. Specimens of the urine were taken before, during, and for four days after the convulsions, and without special precautions put into corked bottles. Three weeks after they were in the following state: The last

four were alkaline and decomposed; the first was still acid, but beginning to decompose; the second and third were still acid and normal. In the discussion it was suggested that some substance associated with eclampsia preserved the specimen or that the chloral had. The earliest specimen, however, was obtained before any chloral had been given.

At the Royal Academy of Medicine in Ireland, May 11th, TAYLOR described his new operation for cleft palate. The great feature is observance of the main nutrient vessel coursing from the posterior palatine foramen along the base of the alveolar process forward. The steps of the technic are as follows: Rose's position on a low table; saliva and blood pumped away by suction apparatus; all possible sponging avoided; a curved bilateral incision from the last molar tooth behind to the middle line in front back of the incisors, thus including in the flap the main trunk of the posterior palatine artery; freeing of the flaps from each side by means of a rugine, not of a raspator as so often recommended; retraction of the freely-loosened flaps and division of the union of the hard and soft palates with the knife or curved scissors; suture of the carefully-pared raw edges with silver wire or with silk-wormgut; division laterally near the hamular process of the soft from the hard palate to relieve tension, if necessary. Union is prompt and complete as a rule.

A. ROUTH, at the London Obstetrical Society, July 5th, read a paper on Porro-Cæsarean hysterectomy with retroperitoneal treatment of the stump for uterine fibroids obstructing labor. When the patient was first seen a large fibroid filled the true pelvis and displaced the cervix up out of the pelvic strait and reach; about the thirty-fourth week it was drawn up out of the pelvis, but another fibroid combined with it to obstruct the descent of the head absolutely. On this account Porro-Cæsarean operation was selected instead of a panhysterectomy or a Cæsarean section with removal of the appendages. The steps of the operation were: A median exposure of the peritoneal cavity between the symphysis and the umbilicus; incision of the uterus just posterior to the left broad ligament, which presented at once in the wound with the fibroid at its right; stripping off of the placenta, which was under the opening in the viscus; division of the membranes; extraction of the child; traction of the uterus into the wound; completion by Baer's method; recovery of both parent and child. Except in cases of cancer of the supravaginal cervix, it is a point worthy of discussion, whether this Porro-Cæsarean operation with retroperitoneal treatment of the stump is not safer for the patient than the Saenger-Cæsarean operation with a removal of part of the appendages, whenever abdominal section is needed for cases of delivery permanently obstructed. Whenever a viable mother and child were to be obtained the cases could be separated into three groups, viz.: (1) Those in which a Porro operation or a panhysterectomy with or without the preserva-

tion of one or both ovaries is absolutely indicated; (2) those in which a Saenger-Cæsarean operation with or without sterilization can be done; (3) such as may be treated well by either method. The indications for the first series are uterine fibroids. Cicatricial vaginal stenosis with arrest of lochia, septic endometritis, decomposed fetus, uterine inertia after hemorrhage of a Cæsarean operation, extensive uterine damage by efforts to extract the child *per vaginam*. The Saenger-Cæsarean method without sterilization is required when the mother desires to have another child; with sterilization when cancer has invaded the supravaginal cervix. The last group comprised such patients as had contracted pelvis. In these any method might be adopted, but the choice seemed to rest with the modern Porro.

A. L. GALLABIN termed this operation Baer-Cæsarean, because the original Porro does not suture the peritoneum over the stump and drop the latter into the pelvic cavity. He considered it the best operation for such conditions, not complicated by pregnancy nor by the presence of fibroids, indeed, a good substitute for a Cæsarean section for any purpose. He desired to know how severe the hemorrhage had been before the ligation of the ovarian or the uterine vessels.

P. HORROCKS agreed in the choice of operation for this particular case, but in general he thought a Cæsarean section, with removal of a segment from each tube to sterilize the woman, much the best operation. At the same time no fixed rules can be adopted but judgment during the operation must be used. In general, too, he always leaves both ovaries in place.

W. R. DAKIN said one ovary left behind will keep the woman in health. Certain dangers attend leaving the uterus sewn up, notably infection of the peritoneum through an imperfect wound or adhesions of the uterus to the parietes and subsequent incarceration of the intestines in the spaces so made. Hence, he preferred the Porro method and believed it does not increase the shock.

H. SPENCER agreed that the best operation for the case had been done, but considered the method of dealing with the stump not without some dangers, namely, infection of the general peritoneal cavity through the vagina and adhesions between the suture-line and the intestines, causing finally obstruction. This happened in one of his cases. Again, sterilizing the patient he considered not justifiable from the moral point of view. The conservative Cæsarean section he always favored. Adhesions between the parietes and uterus often shut off the peritoneal cavity so that a second or third operation can be done. He had such a case in which under local anesthesia through scar-tissue and adhesions he delivered a third living and healthy child while two others had died. Here the general peritoneal cavity was not opened.

J. H. TARGETT on the other hand considered any Cæsarean section without sterilizing the patient unwarranted and always preferred a hys-

terectomy when practicable. He showed the specimen of a uterus taken from one of his patients. Two years after a Cæsarean section for impacted shoulder, she ruptured her uterus through the old scar and the child and placenta were found free in the abdominal cavity. Recovery followed.

A. DORAN said that retroperitoneal treatment of the stump is best if skill and time are present, otherwise the old Porro-Cæsarean operation had best be done. Panhysterectomy is a still lengthier operation.

ROUTH in closing said elastic ligatures were not needed in this case. Prompt clamping of the vessels prevented much hemorrhage.

C. D. MARSHALL at the Ophthalmological Society, July 6th, read the report of an autopsy on a case of optic-nerve tumor in which the orbital cavity was cleaned out in 1897. In fair health until just before death in May, 1900, she showed the following conditions: Great distention of the middle meningeal vessels; enlargement of the Pacchionian bodies; flattening of the convolutions and replacement of the chiasm by a diffuse, soft tumor, of bantam-egg size, of ill-defined limits, and so soft that a stream of water would have washed it away, centred on the right optic tract, spread along the chiasm, involving the left optic tract and nerve (both of which were much enlarged), extending to the pons and third and lateral ventricles, involving the left optic thalamus and corpus striatum, including the third, fourth and fifth nerves of each side, invading the lower surface of each temporosphenoidal lobe, recently hemorrhagic and broken down in the region of the left optic tract and without separate brain deposits. Microscopically the growth appeared to be immense hyperplasia of the neuroglia and fibrous parts of the pia. The left nerve, much enlarged, presented early stages of the same growth.

SOCIETY PROCEEDINGS.

THIRTEENTH INTERNATIONAL MEDICAL CONGRESS.

Held at Paris, August 2-9, 1900.

(Continued from page 234.)

SECTION ON INTERNAL MEDICINE.

FIRST DAY—AUGUST 3D.

Gastric Diseases.—Professor Dieulafoy of Paris opened the discussion by a report on "The Origin of Gastric Ulcer." He considers that acute ulcer of the stomach is nearly always infectious in origin. He has seen a series of cases in recent years in which, during the course of pneumonia, hematemesis has occurred. On several occasions death has ensued and the autopsy showed that the mucous membrane of the stomach was deeply eroded. In nearly every case the pneumococcus was demonstrated almost in pure

culture. At times these micro-organisms were found in large masses. Very seldom had the ulcerative process attacked the muscular coat of the stomach. The ulcers were evidently acute and but of few days' standing; the weakening effect of the loss of blood caused death to ensue from the pneumonia. A small artery was usually found to be eroded. The hematemesis usually occurred on the third to the fifth day of the pneumonia.

Gastric Ulcer from Toxemia.—Professor Dieulafoy has also seen gastric ulcer result from an intense toxemia. On the second or third day, for instance, of an appendicitis the patient becomes yellow, evidently from toxic icterus; the urine contains albumin and urobilin in considerable quantities and black vomit, evidently of altered blood, occurs. In such cases, when fatal, an ulcer of the stomach is also found. It is evident that the presence of the toxins in the circulation causes the stomach to attempt their elimination as occurs with so many poisons. This elimination serves to lower the vitality of the mucous membrane and then the ulcers occur. It has always been said that the gastric juice caused the ulcers by digesting the mucous membranes. There is some predisposing cause needed, however, and it seems to be in many cases either septic or toxic or infectio-toxic. The ulcers that occur during the generalization of the pneumococcus in the system, the so-called pneumococcic, evidently correspond to those that occur during the toxemias. In most cases of ulcer of the stomach it is probable that either some septic condition or an intoxication has preceded the actual ulcer.

Post-Ulcerative Cicatricial Stenosis.—Professor Ewald of Berlin discussed the treatment of these cicatricial contractions of the stomach after ulcer. They often give a great deal of discomfort and the only satisfactory treatment in obstinately severe cases is recourse to surgery. In a recent case a young woman came with all the typical symptoms of gastric ulcer. Her condition was so bad that she was at once put on the ultimate treatment for gastric ulcer. Her stomach was given absolute rest. Nothing was given by the mouth and she was nourished *per rectum* and subcutaneously. In two weeks all her symptoms disappeared and she was able to take milk and then other nourishment. She seemed perfectly cured. After three months, however, gastric symptoms recurred although without hematemesis. There was evidently a question of cicatricial contraction. A gastroenterostomy was done and all the symptoms were relieved. The patient has remained well ever since. As soon as it has been demonstrated that such cases are obstinate to medical treatment (as they are inevitably progressive), surgical intervention should be recommended.

Diagnosis of Cicatricial Contraction.—For this Professor Ewald has found that if the stomach is distended with air and then filled with water, especially if the stomach-tube be used for this

purpose, the air will remain beyond the contraction, and when an electric lamp is introduced into the stomach there is a characteristic difference between the light shining through the air and the water.

Pneumococcus Ulcers of the Stomach.—Sansoni of Turin reported several cases in which gastric ulcers complicated pneumonia and others in which at autopsy pneumococci were found in the stomach lesions. Where pneumococcus ulcers occur they are especially liable to be complicated by hematemesis. When they occur as a complication of pneumonia the prognosis is apt to be fatal.

Surgery of Gastric Ulcers.—Professor Doyen of Paris said that in presumably non-cancerous affections of the stomach which are obstinate to medical treatment at least an exploratory incision is indicated. Sometimes a cancer in an operable stage will be found and can be removed with an excellent prognosis. For ulcer of the stomach surgical intervention is a most favorable procedure. It is not necessary to touch the ulcer itself, but only to do a gastroenterostomy. The ulcer heals completely and gives no more trouble. Professor Doyen has operated now in not less than 140 cases with most satisfactory results. A posterior gastroenterostomy is done and is very seldom fatal. It is time for medical men now to realize that the introduction of surgery into the field of stomach diseases, far from being an uncalled for encroachment on their special field, is a great benefit to patients for whom medicine can do absolutely nothing. Most doctors of long experience have had the sad duty of having to stand idly by while young patients bled to death from an uncontrollable hemorrhage from a gastric ulcer. In the present state of surgery to permit such an occurrence is almost criminal.

Lab Ferment Tests.—Meunier suggested that after the neutralization of the acid of the gastric juice the lab or milk curdling ferment can be calculated quantitatively. The amount of lab ferment seems to bear a direct ratio to the amount of pepsin present, and when the pepsin is increased or diminished the lab ferment seems to share its variations. The prognosis of the absence of lab ferment seems to be the same as for the absence of pepsin.

Neurotic Vomiting.—Bendersby described a series of cases in which persistent vomiting was due, not as was originally suspected in most of the cases to organic disease of the stomach, but to nervous conditions. These nervous gastric symptoms are much more common than has been supposed. Almost any organic lesion of the cord or brain may cause them, and vomiting is a pregnant sign of nervous trouble. More important for the general practitioner, however, are the cases of purely neurotic vomiting that occur. For these lavage has often been tried, but it seldom gives satisfaction and often seems rather to do harm than good. The reflex nervous excitability of the stomach is increased by the irritation of the stomach-tube and the water that is in-

troduced. The best treatment for mild cases is an absolute milk diet for several days with gradual additions. If this is not well borne, absolute rest should be given to the stomach for some time and rectal feeding substituted.

Essential Gastric Crises.—Dr. Tarrulla of Barcelona reported some cases of stomach symptoms resembling those that occur in the gastric crises of tabes yet where tabes was surely not present. In certain tabetic cases the crises occur very long, often even years, before the other signs of tabes become manifest. In Dr. Tarrulla's cases sufficient time had elapsed to exclude tabes and he assumes that the crises are part of a general neurosis or sometimes are due to a degeneration of the ganglia in the walls of the stomach. In any case the treatment should be directed to the nervous system rather than to the stomach. In all cases, of course, careful examinations of the gastric contents should be made so as to exclude disease of the stomach itself.

The Fats as Food.—Dr. Hermann Strauss of Berlin said that in many cases of hyperacidity of the stomach the use of the milk fats, butter and cream and milk itself, gave relief of symptoms and were nearly always well borne by the stomach. In about 5 per cent. of the cases the patients had an idiosyncrasy for milk and could not take it. In cases of gastric ulcer with hyperacidity the milk fats prove especially satisfactory. It is in these cases particularly, that the carbohydrates are poorly borne. The sugars and starches increase the gastric acidity and add to the discomfort already felt. The milk fats should be given in quantities from 100 to 250 grains per day and an examination of the stools will show that a good part of this amount is digested, absorbed and consumed by the organism.

Olive Oil for Gastric Cases.—Dr. Cohnheim of Berlin detailed his experience with large doses of olive oil in cases of severe gastric distress. In his first case the young man had suffered from an injury in the gastric region and it seemed probable that a traumatic ulcer had resulted. The pain on eating was so great as to make the patient avoid food. A wine-glass of olive oil taken before meals gave complete relief. The same remedy was then tried in other cases in which stomach discomfort was a prominent symptom. Even in cases of gastric cancer relief was afforded to many symptoms. In cases of pylorus stenosis most satisfactory results were secured as far as the alleviation of symptoms was concerned. Besides the dilatation of the stomach that existed began to diminish and in some cases eventually disappeared completely. These were evidently cases of functional or spastic pylorus stenosis and the result was most satisfactory. In some of the cases lavage had been tried for a long time without benefit and in one or two cases with increase of the symptoms. Cohnheim has treated 12 cases of gastric catarrh by this method with uniformly good results whenever the patients bore the oil well. A certain number of patients, about 1 in 20, cannot take the oil in the doses

required, that is, up to about 250 to 300 grams per day. In one or two cases this method of treatment was tried as an absolutely last resort before operation and it proved successful. Patients who had lost so much in weight as to appear almost cachectic began immediately to gain in weight and within a couple of months gained from fifteen to thirty pounds.

Olive Oil as a Family Remedy.—Professor Mathieu of Paris said that in certain of the country parts of Germany olive oil is used as a family remedy for all stomach pains. It is most effective and has a high reputation. In certain parts of France the same thing is true. It is often surprising to what an extent pathological changes have often taken place in the stomachs of these country people before they complain. The olive oil seems to relieve all discomfort. In his practice at the Hôpital Andral Dr. Mathieu has often used this remedy and knows how efficient it is where less simple remedies have failed. He recommends it with confidence, despite its utter empiricism and lack of claim to any scientific basis.

Idiopathic Esophagus Dilatations.—Dr. Einhorn of New York discussed the causes, diagnosis and treatment of pouches of the esophagus. Most people claim that the esophageal dilatation has its origin in the scar of an old wound. It is probable that congenitally there are in some individuals weak spots in the wall of the esophagus which yield under the repeated applications of pressure during the act of swallowing. The best diagnostic sign of the existence of a dilatation of the esophagus is the failure of the ordinary swallowing murmur when auscultation is practised over the course of the esophagus low down. Where doubt exists the patient may be asked to swallow coffee or some colored liquid and use pressure to force it into the stomach, then water may be swallowed without pressure. The two different colored liquids may be brought up by the stomach-tube after a little manipulation. Usually patients who come have no idea that the material they swallow fails to reach the stomach. They usually complain only of a sense of pressure in the thorax.

Treatment of Dilatation.—Many suggestions have been made as to treatment. On theoretic grounds it has been thought that for a good while patients suffering thus should be fed through a tube so as to allow the esophagus absolute rest. There are no cures reported. The best treatment seems to be to wash out the esophageal pouch every evening and so prevent the continued presence of irritating material in the esophagus. Under this treatment patients often gain in weight twenty to thirty pounds and regain all their old strength.

Gastroenterostomy and Its Results.—Dr. Bourget of Lausanne presented the statistics of 146 gastroenterostomies done at the Lausanne Hospital for various indications. About one-half of the operations were done for functional disorders of the stomach. The total mortality was less

than 10 per cent. and the results of the operations, especially in non-malignant cases, were very gratifying. The mortality of gastroenterostomy has been so much reduced that in all cases of severe gastric discomfort that prove obstinate to medical treatment at least an exploratory laparotomy should be done. If the gastric condition proves to be pylorus stenosis or spasm, or cicatricial contraction, or a recent ulcer, then a gastroenterostomy will relieve all the symptoms.

Muco-Membranous Enteritis.—Dr. Ismar Boas of Berlin made a special report on this subject. He considers that the disease usually has some pathological condition of the intestine for its basis that it is a true enteritis or colitis. It usually occurs in nervous individuals and a nervous element often enters into its etiology, but this is not the important feature of the disease. There are certain extremely painful attacks which come on suddenly in the midst of apparent good health which remind the observer very much of nervous crises due to organic disease of the spinal cord or brain. These cases are, however, extremely rare. There are certain cases of muco-membranous colitis in which the nervous symptoms fail entirely. Often the symptoms that are present are most indefinite. Sometimes patients know that they pass membranes in their stools; often, however, they are completely unaware of the fact. In such cases they are often surprised to see the pieces of membrane that come away after a simple rectal injection.

General Nutrition.—Patients suffering from this disease are often in excellent general health. They are frequently able to eat the most indigestible food without the slightest discomfort. Very often there is a history of having suffered from constipation for a long time. Usually most persistent attempts have been made to relieve this constipation and many different laxatives have been tried. Undoubtedly the present fashion of taking manifold laxatives is largely responsible for the increased number of cases of muco-membranous colitis that are reported every year.

Confusion of Terms.—Dr. Mannaberg of Vienna said that under the term muco-membranous colic or colitis it is evident that very different diseases are grouped by different observers. At one bathing-place in France one physician has seen 456 cases of the disease within a few years. Dr. Litten of Berlin saw 40 cases in one year's hospital experience. Dr. Einhorn saw 24 cases in about the same time in New York. About 5 per cent. of the patients of Professor Potain's private practice suffer from the disease. In Vienna, on the other hand, in Professor Nothnagel's clinic, where a special study of intestinal diseases has been made for twelve years and where such interesting cases would surely not be missed, only about a dozen cases have been seen in as many years. It is probably true, as Professor Potain claims, that the disease is more common among the well-to-do than in hospital practice. In Professor Nothnagel's private practice in Vienna the cases have been almost as rare as at the clinic at

the General Hospital. In Vienna they do not consider that a case deserves the name muco-membranous colic because mucus occurs in the stools and an occasional piece of coagulated material. The name is reserved for the more severe cases with the characteristic symptoms. Pain is especially an important diagnostic sign of the true muco-membranous colic. In a recent case a young man suffering from gonorrhea was taken with otitis media. He was of a nervous temperament and worried very much over both ailments. Suddenly he was taken with severe colicky pains in the abdomen which lasted for three or four hours and then he passed a characteristic membrano-mucous cylinder. The neurotic element in these cases is very evident when they are typical. It is probable, then, that too many cases not true membranous colic have been included under that name. In autopsies made a positive result was found, that is, some lesions of the large bowel were encountered. In two other characteristic cases of the disease, one of which was under Professor Osler's care in America, nothing was found in the intestine to account for the symptoms. The question of the nervous or inflammatory nature of the disease will have to remain unsettled until we have more autopsies. Unfortunately or rather fortunately patients very seldom die of the disease. While constipation is often associated with the condition, it must be remembered that this is not an invariable rule. Obstinate constipation may be followed by a paradoxical diarrhea. In general the disease remains one of the mysteries of modern medicine.

SECTION IN SURGERY.

FIRST DAY—AUGUST 3D.

THE session opened with Professor Tillaux, the President of the Section, in the Chair. On the entrance of Professor von Bergmann of Berlin, a few minutes later, the Chair was given up to him. It was noticeable that at the morning session all papers were kept within their limits of ten minutes, but at the afternoon session, with a Frenchman in the chair, papers exceeded their time twenty, thirty and even forty minutes.

The principal discussion was on the surgery of the pancreas, and was participated in by Professor Ceccherelli (Parma), Mayo Robson (Leeds), Boeckel (Strasbourg), and numerous others, some of whom have been put off till to-morrow's session.

Ceccherelli began with a review of the subject from which he deduced conclusions in relation to all questions concerned. His principal conclusions were: Any functional disturbance of the pancreas, as indicated by loss of flesh, presence of fat in the stools, sugar in the urine, bronzing of the skin, icterus, and pain in the pancreatic region, should cause the consideration of an operation. Surgery of the pancreas has not advanced *pari passu* with visceral surgery in general, on account of the difficulty of diagnosing

pancreatic disease, especially in a stage early enough to give surgery a chance of success. Moreover, considerable difficulty is met with in complete extirpation on account of the anatomic conditions of the pancreas, its deep situation, its intimate connection with other important viscera, its rich supply of vessels and nerves, and the fact that its secretion plays such a part in the economy. For although it has been proven experimentally that extirpation is possible and compatible with life, it has not been proven clinically in spite of a few cases which have been recorded. Extirpation is never advisable in syphilitic or tubercular processes. Partial extirpation should be so done as to leave one of the two pancreatic ducts. The most frequent tumors are cysts, either hemorrhagic, following traumatism or apoplexy, or retention, or hydatid. In these cases intervention is justifiable and frequently necessary, but extirpation of the organ should not be attempted, the removal of the cyst being sufficient. When the operation is complete, the cavity of the cyst should be entirely closed, or, if this is impossible, its walls should be sutured to the abdominal wall in order to prevent exudation of pancreatic juice into the abdominal cavity. In the case of calculi the surgeon should not hesitate to remove them. Necrosis needs surgical intervention in order to remove the necrotic particles. In suppurative or gangrenous pancreatitis the rule is not to operate during the acute stage, but if later an abscess or gangrene develop intervention becomes necessary and three routes are open to the surgeon, namely, the lumbar region (extraperitoneally), the pleura, or the median line. In hernia of the pancreas following wounds, reduction and, if necessary, fixation should be done. If the hernia is diaphragmatic the route through the thorax is preferable. Some cases of movable pancreas have been observed and experimental pathology would seem to authorize fixation. If, due to any process, the opening of the canal into the intestine is occluded, a new opening should be made and, if this is not possible, a pancreatic fistula should be created. Sutures through the parenchyma of the pancreas are tolerated as in the kidneys, the liver, and the spleen. Union of wounds takes place by proliferation of the preexisting cells, and especially of the connective tissue; experimentally regeneration of the pancreas has been proven. Often complete extirpation of the pancreas, a marked development of the glands of Galeati occurs to such an extent as to replace the extirpated viscus. In extirpation ligatures, not the cautery, should be used to prevent hemorrhage.

Professor Mayo Robson of Leeds commenced his report by stating that he is convinced that pancreatic affections are much more common than is usually thought. He based his remarks on his personal experience, he having operated on 40 cases of pancreatic disease, and having seen a considerable larger number of cases in which operation was either not consented to or not thought advisable. Under anatomical considerations he dwells on the importance of pos-

terior drainage where practicable in acute and in suppurative pancreatitis. For reaching the main pancreatic duct, he has found it practicable to incise the second part of the duodenum and lay open the termination duct from the papilla.

Cancer of Pancreas.—Of which he has seen over fifty cases, the author has found usually to occur after 40, and he believes that the cases occurring earlier in life are in many instances chronic interstitial pancreatitis, which may resemble cancer not only in the symptoms, but in the naked eye appearance after death. After describing the symptoms, he remarked on the importance of distinguishing between cancer of the head and that of the body and tail of the pancreas; he then discussed the diagnosis and advised that especially in young subjects, but also at times in older patients, a hopeless prognosis should not hastily be given before surgical treatment has been tried, for if the case turns out to be chronic interstitial pancreatitis, a cure may result from treatment. In describing the treatment, the author thinks that excision of the pancreas for cancer can seldom be feasible or justifiable except in those cases where the disease is limited to the body or tail of the organ, and then only when it is caught in an early stage. Of the 15 cases on which he has operated for the relief of symptoms by cholecystotomy or cholecystenterostomy, 9 recovered and lived for some time in greater comfort. The important fact, however, that some of the cases operated on and thought at the time to be cancer of the head of the pancreas, but which recovered and are now in perfect health, showing the tumors to have been chronic interstitial pancreatitis and not cancer, leads the author to advocate operation in all cases not too far advanced, especially in young or middle-aged patients, not because much good will be done if the case be truly cancer, but under the hope that the tumor may be inflammatory and not malignant.

Pancreatic Cysts.—The author has operated on 5 cases of pancreatic cyst, for which as a routine treatment he advocates incision and drainage which he has performed in 4 cases with 3 recoveries. In one case the cyst was so easily enucleated that it was removed in that way, and the patient made an uninterrupted recovery, but his experience not only in his own cases, but in others seen under the care of his colleagues, would lead him to believe that excision can only rarely be justifiable. In none of his cases were any pathognomonic symptoms present, and the author thinks that the diagnosis must usually be made from the physical signs.

Acute Pancreatitis.—The author draws a parallel between the inflammatory diseases of the liver, such as infective and suppurative cholangitis and chronic interstitial hepatitis and similar diseases of the pancreas and its duct. He believes he has seen functional ailments of the pancreas ending in recovery that would come under the heading of infective catarrh of the pancreatic ducts, and he adduces positive evidence of suppurative catarrh of the ducts, as well as of chronic

interstitial inflammation of the gland. He believes that as diagnosis becomes more perfected these diseases will be more frequently recognized and awarded their proper place in medicine. The author assents to the pathological classification proposed by Fitz, of dividing acute pancreatitis into suppurative hemorrhagic and gangrenous pancreatitis, but for clinical purposes he considers the subject under acute, subacute, and chronic pancreatitis. In discussing the etiology he lays stress on bacterial infection as being the essential and immediate cause, but enumerates a number of extrinsic causes such as gastroduodenal catarrh, injury, and pancreatic and biliary lithiasis. The mode of infection he believes is nearly always through the ducts. The author discusses the symptoms, signs, and diagnosis, and remarks that although pancreatitis is a disease without exact pathognomonic sign the diagnosis can usually be arrived at by a careful study of the history, mode of onset and the combination of symptoms and signs.

A case of acute infective pancreatitis coming under the author's observation is related, also four cases of the suppurative form which were operated on after abscess had formed; of two, in which the pus was evacuated by an incision in the loin, recovery followed, of two opened from the front, both died. In both cases leakage of pus had previously occurred into the stomach and had been vomited. In one case of suppurative pancreatitis in which rupture of the abscess occurred into the bowel, the patient was too ill when seen to bear operation, and gradual recovery occurred without surgical treatment. The treatment of acute infective and frequently that of suppurative pancreatitis practically resolves itself into that of peritonitis commencing in the superior abdominal region, and the author lays stress on the getting rid of inflammatory products by lumbar drainage if practicable, although it may be necessary to make the diagnosis by an anterior incision. In the acute form he draws a comparison between gangrenous appendicitis and acute infective pancreatitis and considers surgical treatment just as necessary in one as the other as soon as a probable diagnosis can be arrived at. If there be great distention in the epigastrium it will be easier and safer to make the exploratory incision in the left costovertebral angle. Treatment other than operative, in order to get rid of distention, relieve pain, fever and other symptoms until a definite diagnosis can be made, is also considered. The details of reaching the abscess when found are also discussed, whether the collection be lumbar, subdiaphragmatic, epigastric or pelvic.

Chronic Interstitial Pancreatitis.—Mayo Robson lays great stress on the importance of this disease, which he believes is often mistaken for cancer of the head of the pancreas and which he believes has not received much attention either from clinical observers or from pathologists, certainly not as much as it deserves. His experience in this class of cases has resulted from his

having operated on a considerable number of cases of jaundice depending on obstruction in the common duct, the obstructive jaundice, wasting, paroxysmal attacks of pain and ague-like seizures having given rise to the suspicion of gall-stones, and the absence of relief by medical treatment having rendered surgical treatment necessary. He argues that its recognition is of vital importance since it is a disease not only capable of relief, but of absolute cure by surgical treatment. The author illustrates his assertion by a brief report of 15 cases on which he has operated, with recovery in 14. In the fatal case, operated on when the patient was almost too ill for recovery, an autopsy showed a simple cirrhosis of the head of the pancreas. In another case in which relief was given by cholecystenterostomy, but in which there was a recurrence of the trouble owing to closure of the opening followed by death three months afterward, an autopsy showed chronic interstitial pancreatitis and not cancer as the course of events had led those observing the patient to suppose would be found. The author believes that chronic interstitial pancreatitis with inflammation in the pancreatic ducts is a regular accompaniment of gall-stones in the common duct, and that it frequently continues after the original cause has passed; this observation has been confirmed by Dr. Ferguson of Edinburgh, who says that his almost universal experience in cases where death has resulted from infective or suppurative cholangitis is that beads of pus can be expressed from Wirsung's duct. The cases related illustrate the symptoms and the treatment by cholecystotomy, which at once removes tension and allows the pancreatic duct to empty the organ of its infective products. Doubtless at times the manipulation of the head of the pancreas, which occurs during the operation, may detach calculi and inspissated mucus or pus from the pancreatic duct. The simulation of malignant disease of the head of the pancreas by chronic interstitial pancreatitis should lead the surgeon to hesitate in declining operation in any case of distended gall-bladder with jaundice where the patient is able to bear it, for, although little good will be done if the disease be malignant, should the disease prove to be inflammatory a real and permanent cure may be brought about. After some remarks on hemorrhagic pancreatitis, which in the author's experience of three cases has always been traumatic and associated with effusion into the lesser peritoneal sac, he discusses the subject of pancreatic calculi, which both from the paucity of specimens in the museums, from the very few examples found post-mortem, and from the few recorded cases, the author believes must be a rare disease, and usually only recognized by the pancreatitis and the obstruction to the common duct with infective cholangitis to which the calculi give rise. For their removal he recommends exploration of the duct through an opening in the second part of the duodenum of which operation he gives examples. In conclusion, the author looks for-

ward to the time when pancreatic diseases will be awarded the place they deserve in the diagnostic efforts of the physician, and when the surgeon will be called on much more frequently to treat them at a stage when operation, whether exploratory or curative, may be undertaken with every hope of temporary success or permanent cure.

Boeckel of Strasburg said that operations on the pancreas are indicated in traumatism, inflammations and their consequences (suppurative, gangrenous, and hemorrhagic pancreatitis, and pancreatic and fatty necrosis), and in solid and fluid tumors. In recent wounds the part of surgical intervention is limited since death usually takes place early. Out of ten such cases eight died. The only rational treatment consists in tamponing. The finding and ligation of the bleeding vessels in the great majority of such cases is impossible on account of the precariousness of the wound. In inflammations and tumors the surgery of the organ is not limited to the gland itself, but takes in also the neighboring viscera. These cases usually consist in a hemorrhage or purulent mass developed primarily in the pancreas, but breaking through and becoming encysted between parts of the neighboring peritoneum. The operation here is very simple, all that is usually required being an incision with enucleation of the mass. If the tumor is limited to the gland alone, especially if it is solid, interference is a much more delicate affair, on account of the deep situation of the gland, its vessels, and the fact that complete extirpation of the gland will lead to a rapidly fatal diabetes. These operations therefore are indicated only in localized tumors and inflammations. In those cases there are three ways of approaching the tumor, from the epigastric region when the tumor emerges above the lesser curvature; through the gastrocolic region, or through the mesocolon, when the tumor has grown between the folds. Exceptionally we may approach through the lumbar region and operate outside the peritoneum. The statistics of operations on pancreatic cases which used to be considered incurable are becoming every day more favorable; some of them are: Suppurative and gangrenous pancreatitis, 11 cures and 9 deaths out of 20 cases; hemorrhagic pancreatitis, 5 cures and 18 deaths out of 23 cases; solid tumors, 8 cures, of which 4 were lasting, and 3 deaths out of 11 cases; 144 cases of cysts arrange themselves as follows: Operation completed at one time, 99 cases, 92 cures, 7 deaths; operation done at two sittings, 16 cases, 16 cures; extirpation, total or partial, 25 cases, 21 cures, 4 deaths; 4 cases without detail gave 3 cures and 1 death.

Splenectomy for Malarial Splenomegaly.—Michailowsky of Sofia claimed to have done splenectomy 16 times, 15 times for malarial enlargement, and once for a post-traumatic, hemorrhagic cyst. Basing his conclusions on these cases and thirty or more done by Jonnesco he insisted on the benignity of the operation, its ex-

cellent results and the disappearance of the cachectic symptoms. One case was a woman in the fifth month of pregnancy with uncontrollable vomiting, edema of the legs (without albumin) cachexia, and pulmonary emphysema. The spleen when removed weighed 3900 grams. The patient recovered without accident. In the sixteen cases there was but one death, and that from pleuro-pneumonia.

Treatment of Hydatid Cysts of the Liver.—

Jonnesco of Bucharest said there are four kinds of operations for hydatid cysts of the liver: (1) Puncture followed or not by parasitocidal injections; (2) marsupialization; (3) incision followed by evacuation and suture of the cyst; (4) enucleation and extirpation of the cyst. This last operation, which is the ideal one, is so rarely applicable that it can only be reckoned on in exceptional cases. Puncture has been abandoned as uncertain and even dangerous. Marsupialization is the operation of necessity, applicable only to purulent cysts and those which are calcified and so prevent retraction of the sac. The operation of choice consists in incision with evacuation of the fluid, daughter-cysts and germinative membrane, followed by suture without drainage or fixation of the cyst to the abdominal wall. The author did six cases, the cysts varying in size from that of a fist to 20-30 cm. in diameter, and all with success. The escape of bile into the cyst is not a contraindication, one case of this kind coming into his category. In one case where he operated a second time for a second cyst, he was able to see the result of the previous operation after two years. The pocket had completely disappeared and only a hard cicatrix remained.

REVIEWS.

Christian Science. An Exposition of Mrs. Ed- dy's Wonderful Discovery, Including its Legal Aspects. A Plea for Children and Other Help- less Sick. By WILLIAM A. PURRINGTON. E. B. Treat & Company. New York.

THE wonderful guilelessness and gullibility of the self-conceited has been the standard prey of the quack and the charlatan ever since there have been "pathies" and "isms." The feeling of being a little better than one's neighbors is not a Biblical tradition but an every-day fact, and the clever man or woman, who by instituting a cult which can engender in its followers this delicate sense of superiority, is sure of a living, and generally a fat one, in this as well as other days and generations.

Some of the ins and outs of the methods pursued in this later day "get health quick" method are well portrayed in this small volume of Mr. Purrington's. We commend it to the uninitiated as well as to the enlightened. That it will fall as water from a duck's back on the fatuous fol- lowers we have not the slightest doubt, since,

from the times of the cunneiform inscriptions to the present, history teaches the fact that social delusions are the hardest things to cure.

The author has taken up some of the legal points of view of Christian Science and has shown what the courts have been able to do in their attempts to avert disaster to those who are really sick and in need of intelligent supervision. From many points of view the design of the work is very commendable, but when one has the "will to believe" it is next to impossible to show the foolishness of their course; and it sometimes seems to be wiser to allow a foolish set of ideas to develop to their most extravagant proportions, when by self-limitation they die. It sometimes is hard on the innocent, for whom this book was written, but the wages of sin is death and what is the superstitious ignorance of most isms and pathies but sin!

Healthy Exercise. By ROBERT H. GREENE, M.D. Illustrated. New York and London, Harper and Bros., 1900.

THIS little volume of 160 pages is a pleasantly-written practical book on the subject of which it treats. Part I. is devoted to the theory of exercise, baths and bathing; Part II. to the choice of an exercise; Part III. to exercises themselves. Athletics among young people at the present time are being carried to an unfortunate extreme. The theory of the book under discussion is that light exercises, such as can be conducted at home, when systematically and regularly prosecuted, develop a healthy muscular tone, give elasticity and proper carriage to the body, and preserve a normal and wholesome degree of health. It is a good guide in such matters.

A Handbook for Nurses. By J. K. WATSON, M.D. (Edin.) American Edition under the Supervision of A. A. STEVENS, A.M., M.D. Philadelphia: W. B. Saunders, 1900.

THIS is a very attractive book and has one important element of superiority over many of its kind which one sees in use in our hospital training schools, namely, that of having been prepared not by a graduate nurse with two or three years' work behind her, but by a physician. A convenient detail facilitating reference and study is the comprehensive and clear marginal indices which carry one from paragraph to paragraph with refreshing definiteness. On the other hand, the general index is rather brief, almost meager and certainly too barren of the cross-references and synonym-indexing which a student book should possess. Under most of the operations the chief instruments needed are mentioned, giving the nurse a good notion of what she must do if required to prepare the instruments for any operation. There is also a most excellent chapter on cases of emergency, to learn which would improve our nurses greatly. Taken as a whole the book is a "revised version" of the subject, a distinct advance beyond its kind.